

# COMPUTERWORLD

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## Prison locks out PCs

BY J. A. SAVAGE  
CW STAFF

MONROE, Wash. — It used to be that after the steel door clangs shut at 9:30 p.m. in the state maximum security prison here, one could hear some of the 348 inmates pounding on the keyboards of 30 personal computers. But last Friday, this experiment — the only one of its kind in the U.S. — was halted, and the computers were removed.

Removing the PCs was imperative for a number of reasons, according to state prison management. However, inmates and others said the decision contradicts society's desire to reform criminal be-

havior during incarceration and fill empty hours with useful pursuits.

Prison officials cited the following problems:

- The storage capacity and complexity of the computers exceed the staff's ability to thoroughly keep track of the prisoners' data.
- The monetary value of the computers is greater than the liability limits for damage or loss by the institution.

- The computers are so bulky that they restrict the guards' ability to check cells.

After the Computing Behind Bars program was under way at the Washington State Reformatory, prison officials realized that prisoners

*Continued on page 100*



## Dow Jones snubs IS chief

BY GLENN RIPKIN  
CW STAFF

NEW YORK — Bill Dunn rode technology as far as he could at Dow Jones. But in the end, it wasn't far enough. Today, Dunn is preparing to leave behind his notable 28-year career at the company.

Dow Jones & Co. last week named Peter R. Kann, publisher of *The Wall Street Journal*, to the post of president and chief operating officer, placing him in a clear line to succeed Chairman Warren Phillips.

Dunn, the flamboyant and outspoken head of the Information Services Group, had been seen as Kann's chief rival for the top spot. His reaction to the promotion was to announce his retirement from Dow Jones, effective January 1991.

Dunn had already raised eyebrows at Dow Jones and throughout the industry by being considered for chairman. For the past year, the scuttlebutt at the firm had Dunn pitted against Kann as the potential successor to Phillips [CW, Jan. 30].

*Continued on page 7*

## Can Sun ride out stormy weather?

BY JAMES DALY  
CW STAFF

MOUNTAIN VIEW, Calif. — In the hills overlooking Sun Microsystems, Inc.'s headquarters grows a brittle yellow grass famous for one thing — its combustibility. When ignited, the foot-high vegetation serves as arborial tinder, burning like crazy and rapidly consuming everything in its path.

Until recently, these same characteristics applied to Sun, which ignited almost immediately after its inception in 1983 to go from a kitchen table start-up to a red-hot \$1 billion firm with a headache on the workstation market.

But a recent financial hiccup, coupled by high-level departures and management gaffes, has cast a critical shadow over one of the sterling success stories in the

## Kodak training IS on server strategy

*Pilot project leads downsizing drive to year 2000*

BY ELISABETH HORNWITT  
CW STAFF

Eastman Kodak Co. initiated a pilot LAN-based distributed system earlier this month that it hopes will ultimately let it move the majority of its information systems from mainframes to local-area networks by the year 2000.

According to Gary Sevare, project manager for corporate IS, the test project is a human resources information system based on 3Com Corp. LANs and Microsoft Corp. OS/2 database servers.

The prototype system for human resources, personnel and payroll will help Kodak determine whether it is "technically possible from an application and communications standpoint to move those functions closer to our own business units," Sevare said.

Beyond that, however, the system will provide Kodak with "our first look at a distributed SQL environment" in which the workstations run applications and the data resides in an SQL-

based database on the LAN server, he added. In an internally distributed corporate statement issued two months ago, Katherine Hudson, vice-president of corporate information systems, said the company's vision of the future anticipates that price/performance and ease-of-use factors within the company "will be

Underexposed  
Kodak wants EDs out of data center consolidation project, talks with IBM. Page 101.

such that most applications will be on workstations and LANs."

One of the main advantages of SQL is that users can mix and match from ends, or DBMS servers, and back ends, or user applications. But while industry analysts agreed that SQL database servers are the wave of the future, some indicated that early implementers should proceed cautiously.

"All sorts of front-end products, including Microsoft's

*Continued on page 101*

history of American business. Last month the firm blamed internal financial glitches for a major setback in revenue, and early this month it announced a hiring

### Clouded picture

*Sun's dominance of the low-end workstation market is under pressure from competitors*

### MINIMUM PRICE FOR MIPS

DG Alpha	\$446
DG On Mhz	\$543
Spacelunker 1	\$730
Dynamis 200	\$860
Spacelunker 300	\$1,160
Bookend 400	\$1,360
AlphaStation 200	\$2,800
AlphaStation 300	\$3,080

DATA: WORKSTATION TECHNOLOGY  
CW STAFF/JOHN P. FOLEY

freeze on most positions (see story page 99).

Predictably, many of the critical arrows have been aimed at 34-year-old President Scott McNealy. Viewed as part marketing visionary and part whiz-kid egomaniac, McNealy has some observers wondering if the firm has become unable to cope with his ambitious management style.

"Decisions were made with no concern for their impact on each other," Steven Oswald, an analyst at Montgomery Securities, a research firm in San Francisco, referring to the simultaneous internal systems conversion and introduction of a broad new product line.

In turn, McNealy has been characteristically brash with what he sees as his critics' myopic sense of the company: "Well

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## Quotable

"I *wasn't* fun anymore, and this business is too tough if it isn't fun."

MELVYN E. BERGSTEIN  
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On his recent resignation from  
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One giant leap for  
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H. Edward Nye practices consensus management at Manufacturers Hanover. Page 51.

## EXECUTIVE BRIEFING

■ IS takes new shapes as groups try to adapt structures and methods to business requirements. Some are dividing into two distinct but connected parts, one to participate in business initiatives and the other to provide technical support. Increasingly, organizations are geared to advance the business objectives of the company. IS can actually help companies absorb changes that are on the horizon, one consultant says. Because it has already weathered more tumult than most parts of the business, it is logical to envision IS helping to introduce organizational innovations. Stories begin on page 51.

■ Downsizing on a grand scale is the goal at Eastman Kodak, which this month started a pilot project to test LAN-based alternatives to mainframe applications. 3Com LANs and OS/2 database servers are at the heart of the test. Page 1.

■ You can insure your portable PC but not necessarily the data in it. As portable storage options increase, insurers are wrestling with the question of how to put a value on information that is increasingly susceptible to theft. Page 100.

■ More nontechnical executives are taking over top IS management positions, creating opportunities and problems. The managers may help IS gain a higher profile but may not be prepared to cope with a systems disaster. Other questions concern how IS will be treated in the competition for resources, how IS's role will change under nontechnical management and how IS fits into the traditional path to top management. Page 67.

■ An IS visionary loses bid to succeed Dow Jones Chairman Warren Phillips. The firm's publisher, Peter K. Kaeser, publisher of *The Wall Street Journal*, to president, putting him in line for top spot. William Dunn, head of Dow Jones' profitable Information Services Group had been considered a leading contender for the job. Page 1.

■ Do you know how much your executive information systems costs? A new study says development can cost more than \$350,000, putting EIS out of reach of all but the richest companies. Page 48.

■ 3-D graphics for 39 cents! That's what two Lawrence Livermore National Laboratory designers have done in developing a system that converts flat-screen

drawings into lifelike wireframe models by incorporating a pair of cardboard 3-D glasses. Page 31.

■ Workstation wars turn to service, opening bargaining options to buyers. Flexible maintenance fees as well as free training and installation are just a couple of the incentives you can get. Page 31.

■ A multinational firm cites IBM distribution and support in choosing a network of IBM System/38s and AS/400s to replace a mishmash of machines. Page 25.

■ Real time is the key to Walgreen's third-party billing network. A pharmacist can get approval for a patient's prescription and payment terms within seconds of entering information at a terminal. Page 41.

■ Rate cuts by long-distance carriers forced telecommunications companies to trim down 1% between the first and second quarters of this year, the biggest decrease since the first quarter of 1987, according to a survey. Page 41.

■ Driving into technology, Cincinnati Milacron moves to sell IS services to manufacturing customers — quite a move for a company that has bought most of its PCs within the last two years. Page 45.

■ Computer Sciences bids for IS business, consolidating its systems integration and consulting groups into a single unit and hiring former Anderson Consulting exec Melvyn E. Bergstein as senior vice-president. Page 101.

**J**ohn Landry, executive vice-president of Culinet Software, explained at last week's congressional hearings on computer viruses that he got involved with the virus issue out of concern that software vendors could be liable for damage caused by viruses planted in commercial software by employees. For example, Landry noted that Culinet's IDMS database management software is used by the U.S. Strategic Air Command (SAC). Landry said that one night he was horrified by the thought of Culinet's liability if the "SAC bombed Chicago" because of a virus in the software. Oy vey!

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# Quarterly income up for IBM

BY NELL MARGOLIS  
CW STAFF

ARMONK, N.Y. — IBM came roaring back from its lackluster first-quarter stumble last week with impressive second-quarter gains across all product lines and national boundaries. Even as they applauded the striking performance, however, industry observers noted indications that an encore may not be easy.

For its fiscal 1989 second quarter ended June 30, IBM reported net income of \$1.3 billion, a 39% leap from \$964 million logged in last year's comparable quarter. Revenue was \$15.2 billion, up 9.4% from last year's second-quarter revenue of \$13.9 billion.

"The revenue blew us away," said David Wu, who follows IBM for S.G. Warburg & Co. "It was much higher than [Wall Street] expected."

The company was quick to point out, and analysts consistently confirmed, that the revenue numbers were depressed by unfavorable currency translation and other factors would have appeared brighter still — indeed, would have cracked a double-digit

rise of approximately 12.5% worldwide after several years of overwhelming increases or even decreases.

However, the 39% net income gain would have been whittled down to a single-digit figure — approximately 8% — had extraordinary items been removed, analysts said.

"Therein lies the problem," said Bob Djordjevic, president of Phoenix-based market research firm Annex Research. "Overall, especially in the U.S., this looks very impressive. But there are problems."

Weighting in heavily on the impulsive side was that IBM could attribute its swelling revenue to every one of its products and service offerings. Wu said, "OS/2 sales growth is to 40%, both in the U.S. and worldwide," he noted. The Application System/400 proved a strong middleware competitor and contributor to IBM's

Against the grain  
Although much of the industry posted, IBM's sales were healthy this quarter



Source: IBM CW Staff Report

## TP monitor issue stands in way of SAA linkup

BY STANLEY GIBSON  
CW STAFF

While the Systems Application Architecture (SAA) promise of a common application environment across disparate IBM platforms continues to loom brightly on the horizon, obstacles to arriving there remain, including the lack of a common SAA teleprocessing monitor.

"It's something we're considering," an IBM spokesman said.

adding that the firm recognizes that SAA needs a general-purpose monitor.

Some developers have speculated that CICS may fill that role. IBM has refrained from including CICS under SAA. However, the IBM spokesman said that IBM is "looking into" moving CICS to the Application System/400.

Currently, developers have to take into account different teleprocessing monitors in different

IBM environments, which can slow development and hinder portability of applications — a goal of SAA.

Under MVS, TSO, CICS and DMS/DC are supported.

Under VM, VM/CMS is supported. CICS is offered under OS/2 Extended Edition. The OS/2 operating system is interactive but does not include a teleprocessing monitor as such.

As a result, developers must write applications differently when writing an SAA application, noted Brian Cohen, head of development at Management Science America, Inc., in Atlanta.

"There is a missing link with

quarterly bottom line, he added.

Also significant, Wu said, is the second-quarter revenue stream's evidence that IBM "has found a way of slowing Amada." Moreover, he added, while IBM appears to owe its resurgence of might in its ongoing price war with its chief rival, Amada Corp., largely to clever deployment of an arsenal of direct pricing deals, "if they gave the store away, you certainly couldn't see it is the [second-quarter] margin."

However, there were areas of concern to analysts. Software, which in recent years was good for a growth rate in excess of 20%, this time climbed a mere 6% higher than last year's second quarter and actually declined from the first quarter.

On the hardware side, Wu said, in view of emerging customer complaints over delivery and support problems, "there's some question as to how helpful the AS/400 is going to be over the next several quarters."

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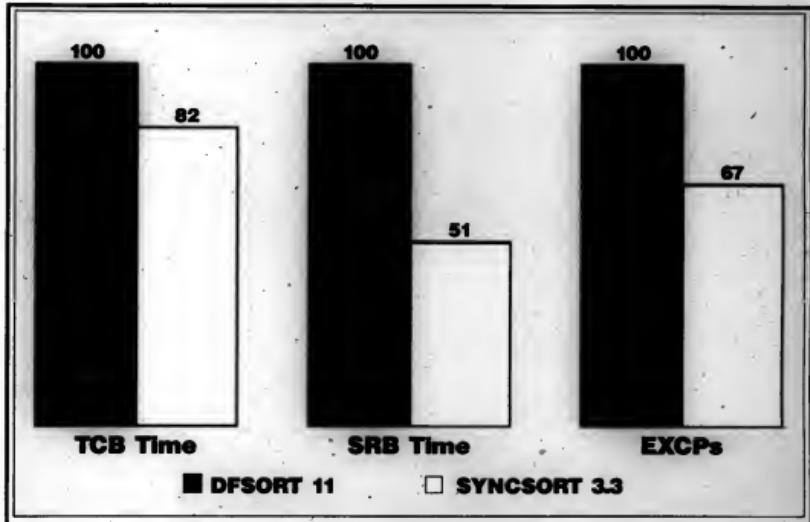
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# RISC may hold key to AT&T mini plan

BY PATRICIA KEEFE  
CW STAFF

**NEW YORK** — AT&T Computer Systems told analysts last week to expect additional offerings in its 382 line during the next 18 months and confirmed reports that it will produce a reduced instruction set computing (RISC)-based minicomputer next year.

James Clark, AT&T's vice-president of minicomputers and high-performance systems, told one analyst that AT&T may introduce "modestly significant" 382-related announcements in the next two years.

Analysts said the statements portage a broader move by

AT&T into RISC, one they expect will eventually make up the bulk of the 382 line.

"Clark said to expect more changes in their minis in the next two years [than we have seen in] the last 10," said Paul Bunyan, an analyst at Business Research Group in Newton, Mass.

These comments were played against the backdrop of a stripped-down vision of AT&T's role in the computer market. Just five years ago, it was widely anticipated that AT&T would lock horns with IBM in a race of the times for the market's \$1,000.

Instead, AT&T acknowledged last week that it cannot conquer the computer world, saying it now plans to focus its

resources on specific vertical markets, bolstered by a streamlined product family and preconfigured systems.

Analysts supported the revised plans as a more realistic approach to the computer market. "It shows they are rethinking their strategy," said Richard Vilars, an analyst at International Data Corp. (IDC).

What were uniformly described as modest hints about plans to move to another processor platform also earned points for AT&T. "They were very clear that RISC was integral to their strategy," said IDC analyst Maggie Konner.

"We are working toward a RISC-based architecture," confirmed AT&T spokesman Barry Campbell.

The picture sketched by analysts is the end of the 382 line — Models 310, 400 and 500, which now overlap in part with its own Intel Corp. 63036-based servers introduced last

week — being phased out, while the now high-end 382 1000 will function as the low end of a new line based on two RISC chips.

That picture, Campbell said, "is not terribly far off the mark." He stressed that low-end 382s will still be sold in the near term, adding that those models were still viable for users who require a Unix-only server.

Still unclear is which RISC chip AT&T will support.

Analysts speculate that AT&T will support two RISC chips. Clark, according to Konner, said "not to take [any] one thing, that we do too seriously; we're likely to develop with more than one architecture."

AT&T has a relationship with Sun Microsystems, Inc., but

Sun's Scalable Processor Architecture (Sparc) is considered by some to be unsuitable for larger systems.

"Rumors are persistent that what AT&T could do with Sparc is 'not terribly far off the mark,'" he stressed. "I think it's management's newsletter, based in Los Altos, Calif. "I really think it would be a mistake on AT&T's part to try ... a Sparc-based product, and I think they realize that."

However, AT&T has also aligned recently with Intel, which is also promoting a RISC chip. That alliance resulted in the announcement last week of a range of 386-based boxes positioned as high-end networked computers and Unix-based file servers.

## BBN super attracts specialty shops

BY ROSEMARY HAMILTON  
CW STAFF

**CAMBRIDGE, Mass.** — BBN Advanced Computers, Inc. last week became the latest company to target commercial users with a supercomputer-class machine.

But chances are its TC2000, which will be offered as a \$350,000 minisuper that can be

General Dynamics Corp. is currently evaluating the TC2000 but not for its heavy-duty performance rating, according to John Taylor, a senior engineering specialist. Taylor said the system could be suitable for a system-level flight-simulation project there.

"It's a pretty significant system, but we won't immediately see a rapid ramp-up in sales," said Stephan Yost, an analyst at Labo Simpson & Co. "It's really designed for applications that don't exist yet, like very large-scale database processing."

BBN Advanced Computers could use a big hit with this system, You added. Its parent company recently reported a losing run for the year's first three months. You said the performance actually has more to do with the company's communications division and not the computer-systems subsidiary. It has made a respectable showing in technical and scientific markets with earlier Butterfly systems based on the Motorola, Inc. 68000 series of chips.

The new system is BBN's first move into reduced instruction set computing territory; it uses Motorola's 68000 chip and can be expanded to accommodate up to 504 of those processors. Such a system would cost \$13 million, and BBN noted it had not received any orders for that configuration yet. A typical configuration would be in the 16-

to 232-processor range. The \$350,000 entry-level system includes eight processors.

BBN argues that it stands a good chance of scoring big with the TC2000 because technical applications are available now and more commercially oriented applications are on the way. The firm, for instance, has a deal with Oracle Corp. that would put Oracle's database management system on the BBN platform. No availability date has been indicated yet.

At the same time, BBN itself is making a bigger push for the technical market. It has fine-tuned the system for time-critical applications by offering both a Unix implementation as well as a real-time operating system. In addition, it will use direct sales for this market while planning to team up with resellers or software partners to go after commercial business.

BY JAMES DALY  
CW STAFF

**MOUNTAIN VIEW, Calif.** — The first supercomputer to come out of Silicon Valley emerged last week with the arrival of an Evans & Sutherland Computer Corp. model designed to make the powerful machines more affordable to users and more amenable to new classes of applications.

Officials from the company said they hope the ES-1 supercomputer will carve out a niche through its "moderately" parallel architecture, wherein the machine's eight processors can either be used together to solve complex problems or shared by multiple users.

The ES-1 is capable of processing up to 1.6 million instructions per second and will sell for between \$2 million and \$6 million when it becomes available later this quarter, the firm said.

Evans & Sutherland spent nearly three years and \$30 million crafting the ES-1, including

setting up a division here to exploit the local design talent. Until last week, the Salt Lake City-based firm specialized in computer graphics applications, including sophisticated flight simulators used in pilot training.

The move comes at a particularly uncertain time for the embattled U.S. supercomputer industry. While the machines continue to draw enthusiastic support in every area from weapons modeling to military strategic planning, domestic manufacturers are facing stiff pressure from Japanese companies that promise speedier price/performance alternatives.

Evans & Sutherland officials said they hope the ES-1 can invigorate the industry and expand the market for the commercial use of supercomputers.

**Reader, please**

"Supercomputers need to be much easier to use if we're going to achieve the growth rates we hope for," said Jean-Yves Leclerc, president of the company's computer division.

Company officials said that to help achieve this goal, the ES-1 runs on an enhanced version of Unix, allowing users to modify and fine-tune programs while the system is running.

Already being counted among the believers is Oliver McBray, director of the Center for Applied Parallel Processing at the University of Colorado. McBray, an astute, he hopes to exploit the ES-1's parallel processing abilities to alleviate the serial bottlenecks that weaken his center's computational strength. Parallel processing, he said, "offers the only hope of getting around that in the next five to 10 years."

So far, Evans & Sutherland has two orders for the ES-1: one from a Japanese distributor, Rihel Corp., and one from Brigham Young University.



BBN's TC2000 supercomputer

configured up to a \$13 million machine with 504 processors, will initially catch the attention of highly specialized technical users instead of finding a place in the typical information systems shop.

The Bolt Beranek and Newman, Inc. subsidiary said the system boasts a fully configured rating of 9.8K million instructions per second, and three sales have already been made to select technical users. The customers are the U.S. Navy's Naval Warfare Systems Center, Litton Industrial Automation Systems, Inc., Integrated Automation Division and Argonne National Laboratories.

The Data Systems Division of

## Processor aid debut

**C**oncurrent Computer Corp. last week announced a new software tool, due this fall, to assist in translating Fortran applications written for a single processor to run in parallel on multiple processors.

Previously, transforming software for parallel processors was largely a manual task, requiring programmers to pore over code looking for places in which parallelism could be applied. While products are available that help pinpoint inherent parallelism, the Environment for Sequential-to-Parallel Processing, or ESP, goes beyond that to fine-tune applications for parallel processing, according to Concurrent. A visual programming environment allows programmers to view the structure graphically and better understand the application.

ESP was designed for use with Concurrent's 32000 family of multiprocessor systems, its OS/32 operating system, Fortran and Fortran 77 compiler. Pricing starts at \$17,500.

AMY CORTESE

## Dow Jones

CONTINUED FROM PAGE 1

In a place in which the powerful *Journal* had always been the spawning ground for the chairmanship, it was considered remarkable that Dunn, coming from the IS Group without an editorial background, could be a serious candidate. But when the dust settled, the tradition held and Dunn was the odd man out.

The announcement put an end to the internal debate about who would succeed Phillips when he retires. Although the announcement

made no formal mention of succession and Phillips, at 63, claims he has no imminent plans for retirement, it is clear that Kann won out over Dunn in the search for a future successor.

In fact, Phillips denied that it was a contest between Kann and Dunn, blaming such speculation on "people's need to cast things in the image of a horse race. I don't do it that way."

Phillips named Dunn chairman of the IS Group and announced that Dunn will spend the next 18 months focused on long-range plans and projects. At 53, Dunn is unlikely to remain at the company until 1991.

"Dunn is likely to get scooped up by another company," said Ken Noble, an analyst for Paine, Webber, Inc., who follows Dow Jones. "He is still young enough to get an opportunity to go to the top spot somewhere."

Those who took the nascent IS Group from its beginnings in 1980 to a nearly \$200 million business unit, refused to comment on the announcement. But his immediate reaction makes it clear that he



Dunn

was more than miffed at being overlooked. He had made it clear in a previous interview [CW, Jan. 30] that he had accrued enough wealth from bonuses over the years to retire "and wander in the desert near Santa Fe in a white robe." Now that the road to the top has been effectively blocked, Dunn may indeed seek his white robe.

### No big surprise

Still, those who follow Dow Jones believe Dunn will be surprised at the choice of Kann. The company's chairmen have always risen from the editorial ranks of *The Wall Street Journal*. Despite flattened revenue and profits from the *Journal* in the past five years, the *Journal* "is still dominant within the company,"

according to Noble. "And as long as it remains dominant, that's where the chairman will come from."

Carl Valenti, president of the IS Group and Dunn's successor as head of that operation, called Dunn "a great leader and visionary. We are saddened that Bill has decided to retire. This is a loss for us. He put us in the position we're in today."

Valenti pointed out that Dunn and his top team within IS have been together for more than 25 years at Dow Jones. "My hope is that something will change over the next year and a half and he won't leave," Valenti said. However, he insisted that the road to the top at Dow Jones is not blocked to anyone from outside the *Journal*.

Valenti added that he expects to see

more promotions and movement from the IS Group; he was promoted last week to senior vice-president of Dow Jones. He admits that while virtually all of the company's growth has come from IS in recent years and the print side of the house has been flat, "remember that for years we were supported and allowed to develop by the *Journal*. We owe a lot to the print side. I see the electronic and print side growing side by side. I believe the top position is open no matter whether you come from IS or not."

Phillips said that he would like to see Dunn stay with Dow Jones beyond his retirement date. "Whether he can be persuaded to change his mind, I don't know," Phillips said. "He has indicated otherwise."

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## CORRECTIONS

Due to an editing error, the last two paragraphs were cut from a recent Training column [CW, July 10]. The paragraphs completed a description of a chart accompanying the column. The missing paragraphs read as follows:

In the third year we need major up-grades or introduction of new courses at a cost of 70% of the first-year expenses. Costs also rise for the purchase option because it may be necessary to buy new instructional materials.

You know, five and six repeat the cycle. Over the long term, it is more cost-effective to purchase than to develop.

An error in a letter to the editor from Robert J. Sywolski, chairman and chief executive officer of CAP Gemini America, resulted in understating the size of his company [CW, July 17]. The letter should have read: "As the CEO of a \$200,000,000/year professional services firm..."

In the Product Spotlight chart on relational microcomputer DBMS [CW, June 19], the prices for The Small Computer Co.'s FilePro Plus 3.0 were runtime prices only. The full development price for DOS is \$990. The network has a price tag of \$1,495.

## NEWS SHORTS

### Microsoft, HP see Apple losing

A U.S. District Court judge ruled Friday that only certain icons and the overlapping windows feature of Microsoft Corp.'s Windows 2.03 and Hewlett-Packard Co.'s New Wave may be subject to Apple Computer, Inc.'s infringement claims. The initial order by Judge William W. Schwarzer limited the case to less than a dozen of the nearly 200 points of similarity that Apple had contended infringed upon the Macintosh user interface. Microsoft and HP attorneys claimed after the hearing that the remaining windows and icons features are either not copyrighted by Apple or are under copyrights that were lawfully obtained. "At this point, the case is virtually over," said HP counsel Neil Bourassa.

### IBM turns up service fees

Another across-the-board service price hike was issued by IBM late last Friday. All maintenance charges will increase by 3%, with the exception of those maintenance fees that had some sort of pricing action on or after April 18. Also excluded are a few select pieces of equipment such as the Personal System/2 system units.

### Hacker given 'stiff' sentence

Kevin David Mittnick was given the "stiffest sentence a hacker has received" last week, the U.S. Justice Department said, after he was sentenced to a one-year prison term, six months in a residential treatment program and three years of probation for the possession of Digital Equipment Corp. security codes. Mittnick had begun cooperating with the U.S. attorney in a case against Leonard Di Cicco, who is expected to plead guilty today, according to the U.S. attorney's office.

### Renegades settle with Andersen

A settlement was announced last week between Arthur Andersen & Co., Sacks & Sacks Co. PLC and six former Andersen partners who formed The Information Consulting Group in Chicago last year. Andersen and all parties had agreed to "put to rest all controversy . . . and dismiss pending suits."

### AT&T profits soar

Chicano gains in the white-hot long-distance market and aggressive cost controls, AT&T last week reported record quarterly profits of \$409 million, an 18% gain over the same period last year, on sales of \$9.2 billion. It also announced an agreement to incorporate San Microsystems, Inc.'s scalable font technology into AT&T's Unix System V, Release 4.0.

### Data General links Unix-RISC pact

Five software developers agreed to port applications to Data General Corp.'s Avion family of reduced instruction set computing-based Unix workstations. The joint marketing agreements include fourth-generation language developers Oracle Corp., Informix Software, Inc. and Relational Technology, Inc.

### MCA version of Vines due

Baytex Systems, Inc. last week announced an IBM Micro Channel Architecture version of its Vines/386 network operating system. Available in August, it reportedly will enable a wider variety of platforms to be certified for use as Vines network servers.

### MAI revises offer for Prime

MAI Logic, Inc. last week offered \$600 million for Prime's mainframe business, leaving on the table the CAD/CAM business Prime purchased from Comshare Corp. of Mountain View, Calif. The proxy battle MAI is waging for control of that same board is still on schedule for the Prime annual meeting later this week.

## Refac to press spreadsheet patent

BY DOUGLAS BARNEY  
CP STAFF

Visical co-developer Dan Bricklin always said that if he had gotten a patent on the spreadsheet, he would be a very rich man. Unfortunately, his lawyer pooh-poohed the idea, and Bricklin, while comfortable, has not joined the first set.

But Refac International Ltd. of New York was not swayed; it obtained a patent that reportedly covers much of the spreadsheet technology. The patent — filed in 1970, some 10 years before the advent of Visical — was not awarded until 1983.

Refac is poised to go after the bulk of spreadsheet makers that appear to infringe on its patent, including Lotus Development Corp., Microsoft Corp., Ashton-Tate Corp., Wordperfect Corp. and Borland International, Inc., Refac officials said.

Refac may seek up to 5% royalties, and Refac general counsel David Fink said potential infringers will have to get to be notified of the alleged violations. Notification should begin next week, and those that refuse to ante up could find themselves in court, Fink said. Lotus declined to comment, saying it has not been contacted by Refac.

Refac, in business since 1952, specializes in licensing intellectual property and has annual sales of \$1.1 million. It obtained the spreadsheet patent from Forward Reference Systems Ltd., a Canadian software firm that reportedly pioneered many concepts used in electronic spreadsheets.

Ironically, both Lotus and Ashton-Tate are pressing cases that claim other firms violate their copyrights because the products look and feel too much like the originals. Copyright law generally applies to the look or creative aspects of a product. Patents, however, apply to the very workings of a product, which often are invisible.

The patent also covers "sophisticated computations . . . generally carried out by mainframe computers designed for highly complex problems." Like a spreadsheet, a sophisticated computer can break up information and handle it out of order, Fink said. This notion forms much of the basis of this patent.

Many lament the chilling effects that patent and copyright infringement cases have on soft-

ware development. Critics have charged that such cases not only limit the creativity of developers but also make smaller developers unnecessarily fearful. Bricklin is himself is opposed to the abuse of copyright and patent law. "Users should be upset because it is going to harm innovation and collaboration," Bricklin said. He is particularly concerned about firms that buy patents for the purposes of licensing. "The people that are doing it have nothing to do with innovation," Bricklin said.

"Most of the people that voice the strongest resistance to paying for patents go to work in firms," Fink said. "They want a free ride." Perhaps most disturbing is the aspect of patent law that prevents the use of offending products.

### Exec prescribes change at firm

FORT LEE, N.J. — On-Line Software International, Inc. founder Jack Berdy plans on running the company electronically from long-distance — while cracking the books as a first-year medical student.

With the company en route to profitability, Berdy last week retooled top management, relinquishing the titles of president and chief operating officer to turnaround consultant Peter Boni.

The 42-year-old Berdy, who will remain chairman and chief

executive officer, said he will attend George Washington University in Washington, D.C., beginning in August and guide the company's strategic direction via the company's electronic-mail system.

"I'm tied into the company's electronic-mail system and I run the company half the time by electronic-mail right now," Berdy said.

The 43-year-old Boni has spent the previous three years as an interim executive for financially troubled firms.



On-Line's Berdy

## Fire group douses proposed standard

BY ELLIS BOOKER  
CP STAFF

The National Fire Protection Association (NFPA) last week backed away from a plan to increase the fireproofing requirement on cables found in computer rooms as part of an expanded safety standard for data communications wires in building air spaces.

The association, whose guidelines are often adopted by many local regulators, had planned to stiffen requirements next month. However, under pressure from within its own membership, the standard, which could have substantially raised the cost of building computer centers, has been modified to exempt raised computer floor installations.

At issue was a proposed revision to NFPA's Code 90A that would have treated the spaces under raised computer room floors as plenum air spaces and thus subjected them to existing

NFPA standards for such areas. Those standards call for the use of Teflon-coated cable or steel conduit pipe for uncoated cables.

According to Richard Bieden, a senior fire protection engineer at NFPA familiar with the debate, NFPA's HVAC, heating, ventilation and air-conditioning Committee had pushed the modification, over which it has jurisdiction. Nevertheless, two other NFPA committees, both of which oversee aspects of computer room guidelines, filed complaints. Both committees argued that raised computer floors should not be defined as plenum air spaces.

Other complaints were filed by Du Pont Co., Prime Computer, Inc. and longtime NFPA member the Computer and Business Equipment Manufacturers Association (CBEA).

CBEA's recommendation was accepted by the NFPA board last week.

Even if NFPA had adopted the proposed revision, it would

not automatically have changed the practice of building computer centers. NFPA is a nonprofit, voluntary organization, and its 260 standards, which include the National Electrical Code, are only guidelines for its 50,000 local and state fire authority members who are not legally bound to follow the NFPA's lead.

In fact, a number of states and municipalities already have some kind of data cable fire code requirements for air plenums, including computer center room floors. In Oregon, for example, the building code specifies that all cable in air plenums must be inside a conduit.

Prices for Teflon-coated cable are much higher than PVC-sheathed cable, a worry to those who fought the NFPA rule change. For example, at National Electric Cable, Inc. in Elk Grove Village, Ill., the Teflon-coated cable used for an IBM 3270 network is \$600 per 1,000 ft, while the PVC type is just \$92 per 1,000 ft.

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# IBM's OSI: How open is it?

*First system may not work with other vendors' OSI products*

BY ELISABETH HORWITT  
CW STAFF

WHITE PLAINS, N.Y. — IBM's first concrete commitment to the Open Systems Interconnect standard may not be so open after all.

The vendor's OSI Communications Subsystem, which promises to allow users to manage their OSI networks via NetView, will be unable to interoperate effectively with many other vendors' OSI-compliant products unless it gets a major

overhaul before its official release date next spring.

Fortunately for IBM's customers, the computer giant has hinted that it may bring its product back into the OSI mainstream by the March 1990 commercial release date.

The subsystem, announced last September, only supports OSI network management as defined by the Manufacturing Automation Protocol (MAP) Version 3.0, according to Michael Gering, a development programmer at IBM's architecture

development group in Raleigh, N.C. This could prevent the subsystem, and therefore NetView users, from interoperating with products from such vendors as Digital Equipment Corp., AT&T and Hewlett-Packard Co., whose products will support subsequent versions of the International Standards Organization (ISO) network management protocols.

IBM chose to incorporate the MAP 3.0 version, rather than the ISO's specifications because at the time, "only MAP had defined the details of protocols far enough to enable two systems to communicate for management," Gering said.

The earliest that the ISO's version could become stable is this fall, when the organization is due to vote on whether to make the current specifications an inter-

national standard.

The MAP/TOP Users Group based MAP 3.0 network management protocols on one of the earlier versions of the ISO's OSI specifications, which have had a number of technical changes since then, Gering said. Like IBM, the MAP/TOP Users Group did not want to wait around for the ISO to define a formal OSI standard.

The MAP/TOP approach is considered "OSI-compatible" but not the same as the latest ISO version of OSI, said Michael Kozinski, General Motors Corp.'s manager of communications/MAP. The MAP/TOP Users Group "drove a stake in the ground" with MAP 3.0, freezing the protocol for six years in response to vendors' requests for stable protocols, Kozinski said. GM "would consider using the IBM Communications Subsystem," he added.

The problem for IBM, and for vendors and users at large, is that too many standards bodies are coming up with their own unique versions of OSI network management. In addition to the ISO and the MAP/TOP Users Group, there is the European standards body SPAG and the OSI Network Management Forum.

"We will implement whatever the market requires, so if that means multiple versions, we will implement them," Gering said. "The Communications Subsystem ships next March, and a lot of things could happen by then."

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## Buyer found for CDC education, training units

BY ELLIS BOOKER  
CW STAFF

MINNEAPOLIS — When Control Data Corp. founder William C. Norris pioneered the idea of using computers as an interactive educational tool 25 years ago, his was a visionary concept full of 1960s-style optimism.

Last week, however, CDC said it had found a buyer for Plato and several other parts of its interactive education business. The sale is the latest in a series for CDC, which has spent the better part of the year realigning its market strategy and methodically selling off parts of its business.

CDC said it had reached preliminary agreement with William R. Roach & Associates in Chicago to form a new training and education company in which it will retain an unspecified, minority interest. The new, as-yet unnamed company will be composed of several units:

- Plato Education Services, which has offered the computer-based remedial curriculum for kindergartners through 12th graders since 1975.
- Plato Professional Testing & Certification Services, with 66 testing and certification centers throughout the U.S.
- Industrial Training.
- Aviation Training.
- Government Training and Education Services.

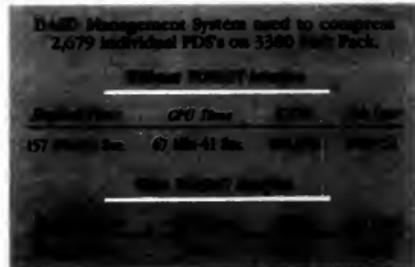
Terms of the agreement, expected to be completed in August, were not disclosed. CDC, however, estimated the initial revenue of the new education unit at \$50 million.

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# Busy airline systems blank out screens

BY MITCH BETTS  
CW STAFF

WASHINGTON, D.C. — Overloaded computer systems at many U.S. airports are causing air-traffic control screens to blank out or flicker during peak hours, thus increasing the risk of midair collisions, according to a government report released last week.

Nearly 70% of the nation's 63 largest airports have experienced computer capacity problems that led to blank or flickering screens or slow response times, according to the study by the U.S. General

Accounting Office (GAO).

For example, at the Dallas-Fort Worth airport, the screens of air-traffic controllers went blank for 16 minutes, said the GAO report on airport Terminal Radar Approach Control (Tracor) facilities.

"Existing computer capacity shortfalls at some large bus Tracor are impairing controllers' ability to maintain safe separation of aircraft," the GAO concluded. The study was requested by U.S. Sen. Frank R. Lautenberg (D-N.J.).

The Federal Aviation Administration (FAA) has taken several interim steps to

unburden the overloaded Tracor systems such as postponing training sessions and streamlining software. However, the GAO sharply criticized the agency for failing to have a computer capacity management program that could have foreseen the problem years ago.

Furthermore, the capacity problem is likely to get worse because the FAA on July 1 ordered 44,000 small planes to be equipped with transponders that transmit flight information to Tracor facilities, the GAO said.

Lautenberg criticised the new transponder rule. "It doesn't make any sense

if an effort to improve safety at one level degrades it at another. If these computers can't handle the additional signals, we should put in a system that can," he said in a statement.

The Tracor facilities use 15-year-old Univac 8300 processors obtained from the predecessors of Unisys Corp., according to Joel C. Willemsen, assistant director of the GAO's Information Management and Technology Division.

The FAA, recognizing that it needs to boost capacity at the Tracor facilities, plans to award a sole-source contract to Unisys for memory upgrades and as many as 300 additional computers.

The FAA concluded that rewriting software for newer processors would be too time-consuming and costly, so the sole-source contract will supplement the current Unisys systems.

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BY RICHARD PASTORE  
CW STAFF

Two personal computer makers are stretching the frontiers of PC manufacturing, but in opposite directions. Advanced Logic Research, Inc. has gone for the gusto with an Intel Corp. 80486-based IBM Micro Channel clone, while Zenith Data Systems has concentrated on the other end of the scale, designing its smallest, portable ever.

Recently, Advanced Logic's Powercache 4 was built from the ground up, it was designed expressly to take advantage of 486 technology, said Dave Kirkey, vice-president of sales and marketing.

The company claimed that Powercache 4's proprietary cache design has beaten the performance of machines using IBM's 486/25 Power Platform add-in board by 37%.

The system comes standard with 2M bytes of random-access memory, expandable to 32M bytes, and packs a 1.44M-byte 3½-in. floppy disk drive. Advanced Logic, which boasted of plans to become "The Company of the Micro Channel Industry," expects to ship Powercache 4 in August.

#### Zenith's notebook

Zenith's Minisport portable computer is about the size of a 1-in. stack of paper and weighs six pounds with battery. The company calls this class of machine a "notebook" computer.

Zenith is betting that worldwide sales of notebook-class computers will reach 100,000 units by year's end, said Zenith Data Systems President John P. Frank.

Minisport, available in two models, features a Daybright screen that is reportedly portable in light ranging from darkness to brilliant sunlight.

It also incorporates a 2-in. minidisk drive. The minidisk holds 720K bytes of data, about the same capacity of 3½-in. disk, Zenith said. The machine's battery can run for three hours between recharges.

Minisport Model 1 will sell for \$1,999 and Model 2 for \$2,799. Zenith said it will ship the portables next month.

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# CA-Cullinet merger puts users in wait-and-see mode

BY AMY CORTESE  
OF STAFF

Four weeks after Computer Associates International, Inc. agreed to buy out besieged Cullinet Software, Inc., Cullinet customers are keeping their fingers crossed and hoping for the best.

Many Cullinet users contacted last week said it was still too early to tell what impact the merger will have. "We'll prob-

ably play a waiting game like everyone else," said Larry Peterman, an information services manager at Sheaffer Eaton, Inc. in Fort Madison, Iowa.

"If CA continues to support the customer base and continue to enhance products, it could be a good thing," said Daniel Sheppard, director of IS at Blue Bird Body Co., a maker of school buses in Fort Valley, Ga.

CA has pledged it will continue to sup-

port Cullinet products, but users will have to wait until the acquisition is completed later this summer for more detailed plans.

#### Doubt lingers

However, doubts persist. "They keep talking about keeping multiple databases, but that doesn't make any sense to me," said Ron Figueiredo, manager of business applications at Bausch & Lomb, Inc. in Rochester, N.Y. Figueiredo reasoned that supporting three major database management system products would be an expensive gamble for bottom-line-conscious CA.

Most users agree that there is safety in numbers. "What they got with Cullinet is a large customer base of over 2,000 IDMS customers; they can't drop them,"

said Jerry Peters, senior vice-president and director of information systems at Exchange National Bank of Chicago.

Peters is concerned about CA's long-term commitment to other Cullinet applications. Exchange National Bank is one of six banks that have purchased Cullinet's banking application. "CA has to buy into the fact that the system is better, not the customer base," Peters said.

CA currently offers a variety of banking products to customers of Unicorp. Although some of these compete with the Cullinet product, there is some synergy between the product lines. Exchange National Bank has written an interface from the CA products to work with Cullinet's application. "In the future, perhaps CA can develop a more elegant bridge," Peters said.

Cullinet customers will be looking for CA to articulate a clear strategy for managing its growing multitude of products. "I see CA as a finance and marketing organization, not a development organi-



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tion," Peters said. "I worry about a long-term vision."

Some customers do not believe CA will drop support of current Cullinet products but are nonetheless eager to learn whether CA will follow through with product plans that were under way at Cullinet.

Lois Pollock, manager of information resources at Werner Electric Brake & Clutch Co. in South Beloit, Ill., said her firm is undergoing a major conversion from its IBM mainframe to the Digital Equipment Corp. VAX. Most of the software applications have been converted, Pollock said, except for a Cullinet manufacturing package.

Pollock said Cullinet planned to port its manufacturing resource planning application to the VAX but added that she wonders whether CA will go ahead with the plans.

Some of the most loyal Cullinet customers say an era has come to an end, no matter what CA finally does. "We started with Cullinet when it was called Cullinet [Datacom Systems, Inc.]," Figueiredo said. "We were in close touch; they understood our problems." However, CA has a different, more sales-oriented culture, said Figueiredo. Blamed CA's constantly changing pricing schemes to "wheeling and dealing in a Middle Eastern marketplace."

Cullinet customers continue to have disparate views on CA technical support. While some tell horror stories, others have had pleasant experiences. Peters noted that he has been pleased with CA support in the past and that support for acquired products "continues at previous levels or improves."

Pollock is not worried. "It has been our experience with other acquired CA products that technical support falls through the cracks for a while" but then improves, she said. "I don't know if that's because we're a squeaky wheel."

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## EDITORIAL

## A look at raises

**D**O THE SENIOR information systems executives of the federal government's largest agencies deserve a 25% raise?

That is the issue Congress will decide shortly when it considers the president's salary proposals. Unfortunately, the real issues will not actually be addressed, given the characteristically queer way Congress does things.

Congress already has rejected one pay hike this year, but not necessarily because IS managers didn't deserve one. The real culprit was public uproar over a proposed Congressional pay boost. So now, Congress will likely try to seize its own raise through bundling it with other raises designated by the president.

An in-depth investigation by the General Accounting Office is needed; the GAO has looked at the issue to some degree and determined the obvious — federal IS executives are not paid as much as their private-sector counterparts.

A more robust study should look into the departure of an increasing number of federal IS managers. Is pay really the primary issue? Perhaps the managers are growing weary of the federal procurement bureaucracy. Or maybe they are tired of not being able to hire at the lower levels of the IS chain because of salaries there.

Such an investigation would at least minimize the arbitrary and capricious Congressional factor in the pay issue.

## Paying the piper

**I**sn't it awful to hear about all those investors who are getting stung as an increasing number of junk bond issuers default on payments of the high-yielding notes?

In fact, it is awful for the investors, because they are now among the many other victims of corporate raiders who have been allowed to plunder so many companies in highly leveraged buyouts (LBO) and buyout attempts.

The junk bonds, which are the key component of the LBO Ponsi scheme, have given raiders the means of taking over multimillion- and multi-billion-dollar firms. The firms are often then systematically dismantled, the proceeds of which are supposed to fund the bond payments. The difference between those payments and what is raised by auctioning off the company goes to a handful of investors, lawyers and bankers.

Oh yes, scores of people often lose their jobs in the process of restructuring while productivity, competitiveness and innovation all suffer.

But now, the scheme is showing signs of unraveling within the marketplace, and several states, including Massachusetts, have enacted laws designed to curb highly leveraged raids. The federal government has so far been content to sit on its hands and let this LBO drama run its course. As a result, these shenanigans and the havoc they wreak will continue, although perhaps less aggressively.



## LETTERS TO THE EDITOR

## Cover up

I was disappointed to learn that one existing method for protecting one's computer from fire, water and smoke damage was consistently left out of "Data-center showers may be hidden option" [CW, July 3]. I have reviewed disaster recovery plans and data center security procedures at various companies. I generally found that any single preventative method was not sufficient to ensure computer hardware would not be unnecessarily damaged during a disaster. A generally accepted approach is to have combinations of fire alarms, smoke and water detectors, handheld fire extinguishers, halon, sprinklers and computer covers that provide overlapping protection.

As an EDp editor, I found that computer covers offer additional protection, have been around for several years and can be manufactured to resist or prevent fire and water from damaging computers.

Finding a replacement for halon is important, however, developing technologies for protecting computer hardware, such as automatic computer covers and waterproof cabinets, should also be given consideration.

John L. Campbell  
Honda North America  
Terrence, Calif.

## No slump

Regarding "Can AS/400 avoid sophomore slump" [CW, June 19], after three migrations from System/36 to AS/400, I feel that the migration aid does an excellent job and keeps a detailed audit trail. In every case, all the programs and procedures integrated properly and executed

without additional modifications.

As with all system transitions, there are bound to be some problems, but we have managed to keep them to a minimum with proper planning and by not rushing the migration. Most System/36 migrations I have seen, the problems were corrected in Release 1.2 of OS/400. Although there are some performance issues still outstanding, many of these can be traced to undersized memory. The one thing the System/36 execution environment likes is system memory; this environment is very sensitive to the amount of available memory. Another pitfall is in the way many System/36 jobs are designed. Many System/36 jobs are designed to run on one hardware in interactive mode; this leads the AS/400 job to time-slice, which causes the job to run slowly.

Remember that the System/36 environment was never meant to be a permanent home for AS/400 applications; however, it does provide an excellent platform for converting your applications to the native environment in a controlled manner.

John DiPalo  
Technical Support Manager  
ARMS, Inc.  
Cherry Hill, N.J.

## We're here . . .

"Up and down trends in systems integration" [CW, June 5] states that there are no systems integration firms combining traditional project skills with network technology. I quote: "... for network, we can only wait."

My comment is: "No need to wait!" There are a number of specialized and innovative companies providing systems integration services that combine traditional systems integration

skills with communications, networking and connectivity experience. The problem is that most of us are smaller specialized companies that don't have the visibility of the larger, more well-known firms.

In today's world of increased specialization, one should be careful in making such generalized comments; take the time to mention the little guys, who in fact account for a significant piece of today's systems integration market.

Tucker McDonagh  
President  
Tucker Network Technologies  
S. Norwalk, Conn.

## Red scare

"Peace, love, not look-and-feel" [CW, May 29] referred to the MFT protest and the Linux Development Corp. as anticopyright activists, just like some members of the press referred to the protesters of the 1960s as communists.

My question is, how did the writer come to the conclusion that the protesters were anticopyright? In fact, just by following *Computerworld* reports, I get the impression that Minsky and his colleagues are strongly pro-copyright [CW, May 11]. However, it is more than clear that they are anti-copyright above or anti-copyright type.

E.C. Tiek  
Uwidiata SDN/BHD  
Malaysia

*Computerworld welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Lederer, Editor, Computerworld, P.O. Box 9171, 375 Congress Street, Room 61701, Framingham, MA 01701.*



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# To be high-tech or not to be

MICHAEL B. COHN

High-tech is an amazingly profitable industry. Sure, it's had its ups and downs, but lots of people in this business are pulling down some big bucks. Of course, I have not been all that fortunate in cashing in on some of this windfall, although I did get a \$50 gift certificate once for making my manager a nice set of curtains.

Now if I figure some of the world's other industries may be catching on. They may have wondered how a bunch of technicians like us have managed to buy beachfront condos, ski equipment and cars that don't have wood paneling on the sides.

So what would happen if some of these businesses were bent on emulating our success? Imagine what would happen if, instead of trying to make what we make, they tried to make things the way we make them? What would happen if, tomorrow, everybody else tried to do business the way we do business?

CINCINNATI — Kiddie & Cutie caught the boomerang baby products industry off guard to-

Cohen is a quality assurance representative based in Atlanta.

day by announcing its revolutionary Mega-Cling Disposable Diapers 10 months ahead of schedule. Mega-Cling is the first diaper of its kind to safely and automatically attach itself to a baby's bottom without pins, tape or even the assistance of an adult. When asked about any future enhancements planned for Mega-Clings, K&C responded, "We still haven't figured out how to get them off, but we will have that worked out in a future release."

TRENTON, N.J. — In an unprecedented show of force-to-electro, American Telephone announced that it was changing the standard key pad design on all of its push-button telephone models. In its place, the company will now only support and manufacture its own design, which swaps the positions of the 0 and the 1. "This may cause a rift in the industry," advised an EAT spokesman, "but we found that the new arrangement is much more efficient. We've switched the entire company over to our new standard ... we anticipate that customers will be eager to do likewise."

DETROIT — The automobile industry today relied behind Generic Motors' long-awaited announcement of its Standard Automotive Accessory Arrange-

ment (SAAA). Said one auto parts dealer, "This will simplify the entire Generic Motors line. SAAA will soon ensure that all GM parts are interchangeable ... every part they make will

be with SAAA, be it preassembly two-bolt bolts that would be available in next year's Generic Motors vehicles, wiper fluid, and those little pine-tree-shaped air fresheners that hang from the rearview mirror.

MADISON, Wis. — Breaking with long-standing tradition,

tens to the general business community.

Originally committed only to providing its dairy products to school lunchrooms and institutions, WHeN suggested that offering its recognizable cube-shaped milk cartons to the public might be a promising source of revenue. The cartons, which sell for 15 cents in the school lunch program, will be available only at selected retailers in the Midwest. "The public's price for a single unit has not been determined," said a WHeN spokesman, "but we're considering something between 30 cents and \$1.00."

MOUNTAIN VIEW, Calif. — Timewopic, Inc., has fired the first salvo in what might be an interesting shadow lawsuit involving the unauthorized use of Timewopic's copyrighted character set and icons. Timewopic's 48-count flag contends that rival watch and clock-making companies have repeatedly used, without permission, the circular display of the numbers one through 12, and the proprietary term "o'clock." A Timewopic spokesman today warned that any company, publication or institution that continued to infringe upon Timewopic's "intellectual property" would be liable for considerable punitive damages. The matter is scheduled to be taken up in a San Francisco courtroom today, when the big hand is on the six and the little hand is on the nine.

WISCONSIN HOMOGENIZED ENTERPRISES NATION (WHeN) today announced that it would soon market single-serving milk car-

expert systems and other artificial intelligence techniques could come to the rescue, but not in the near future.

Even in the PC world, the software gridlock has been pervasive. PC-DOS has been with us for almost nine years, and it still shows strong life signs. OS/2 encountered repeated delays, and although it is a hardware-resource guzzler, few applications have yet been written to fully exploit its capabilities, because complete compatibility development tool kit (including the graphical Presentation Manager) has only recently been released.

Two of the major PC software developers — Ashton-Tate and Lotus — repeatedly stalled in releasing their latest versions (Dbase IV and 1-2-3 Version 3.0 respectively).

**Preventing disasters**  
These PC software delays have had minimal impact on PC shipments to date, they have prevented users from gaining the cooperative processing capabilities they desire.

Indeed, these limitations have encouraged software suppliers to spend significant research and development dollars on creating awkward "patches and extensions" to PC-DOS. This has diverted their attention from more

important, future-oriented products.

The result of this gridlock will be that OS/2 will evolve slowly in the 1990s — in terms of gaining more advanced operating-system functions — and grow up to challenge minicomputer operating systems such as Unix, VAX/VMS and OS/400.

There is no question that pushing a small operating system upward to handle more advanced functionality is more difficult than bringing a large operating system down.

Despite some advances, software still tends to be a "black art" practiced by nocturnal creatures with plastic pocket protectors. Complex software development seems to take a combination of skills — discipline, creativity, ingenuity, foresight and perseverance — that computer vendors and large users have been unable to "bottle."

With the appropriate tools — fifth-generation languages and application generators backed by expert systems — software development will increasingly move from the wizards to the experts, particularly the personal applications. But in the end, it will be software tools that enable the developers and end users to exercise the creativity that will break the software gridlock.

## Break the system software gridlock

DALE KUTNICK

Despite the best efforts of system vendors and third-party software suppliers, the IS industry continues to be plagued by slow software development, particularly in system software. While hardware developments (in both assembly and process power) continue at a dizzying 25% to 35% annual increment, software productivity is moving ahead only 7% to 10%.

Most of this improvement in software is focused on the actual coding process, where structuring techniques, fourth-generation languages and application generators have been a tremendous boon for developing relatively simple application programs, enabling end users to customize applications and create a variety of reports.

Standardization of user access and application program interface technologies coupled

with object-oriented management software — a common global directory — as well as networking and naming services will further insulate users from the underlying connectivity and programmatic subsystems. These are critical steps that will enable users to expand application generation activities without having to become more technically literate.

**Complex systems**  
These software tools have done little to improve the development of complex systems software, particularly that which is required to run large networks of intelligent devices, or even a large data center. The problem is that these environments contain multiple, evolving variables whose interrelationships are often ephemeral at best. This is one of the reasons why few systems vendors have been able to develop highly functional network architectures and logical network management systems.

Expert systems and CASE technology should eventually be able to address this problem by automating the design, analysis and entity relationships in large-scale software projects — and

linking them into a relational or object-oriented database management system. Ultimately, this approach should enable organizations to improve the functionality, reliability and delivery time of complex software.

Another major software issue facing both users and vendors is software maintenance (including extensions to current software). This is currently consumed 60% to 80% of both users' and vendors' software development investment. In most cases, "developed software" assets are in billions of dollars, and preserving and extending them is a high priority, because often (as is the case with users such as airlines) software is inextricably linked to the business.

Any significant function of new programs must be linked back through the old software (via complex layering) to endure compatibility and prevent business interruptions. This stretching makes the older programs even more fragile, but equally important, it adds more complexity, creating a vicious cycle that requires constant patches.

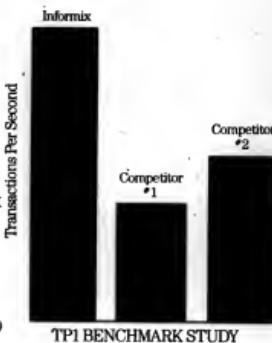
The software industry will be to create totally new programs from the functional specifications of the old software. Again,

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# SYSTEMS & SOFTWARE

## SOFT TALK

Stanley Gibson

### Cullinet's fall a harbinger?

During his lifetime, Cullinet served as a bellwether for the software industry. Probably because it was the first software company listed on the New York Stock Exchange, people tended to look to it as a leader.

Other database management system vendors can now hope that Cullinet's fate is not a harbinger for themselves. But the trend that dogged Cullinet will continue to look for them to fight.

That trend, exemplified by IBM's DB2, is that hardware vendors are aggressively adding their own DBMSs, which they are more closely linking to proprietary operating systems and hardware.

The impact of DB2 has been chronicled at length. But no sooner did Cullinet launch into the DBC market with new DBMS products developed at great cost than DEC began to

*Continued on page 28*

#### Inside

- London-based firm signs for AS/400s. Page 25.
- Tesseract, Walker join forces. Page 25.

### Low-cost windowing in sight

#### ANALYSIS

BY AMY CORTESE  
CW STAFF

Terminals that can run the X Window System are being rushed into the market as vendors look to开辟 a new desktop category for users who want the functionality of a windowing environment but cannot justify the expense of a dedicated workstation.

Digital Equipment Corp. recently affirmed it would offer its own terminal running DECwindows this fall. At its July 11 announcement, a black-and-white terminal running DECwindows was demonstrated, although details on pricing and availability were not given.

X Window display terminals, complete with a mouse and graphical interface, have become available in recent months

from such vendors as Acer Computer, Inc., Visual Technology, Inc., and Network Computing Devices, Inc. (NCD).

The availability of such terminals — which at \$1,000 to \$3,000 are less than half the cost of most workstations — may signal acceptance and support of X Window System and implementations of it such as DECwindows. X Window, which grew out of MIT, has gained widespread acceptance as a vendor- and hardware-independent networking windowing system.

DEC plans to offer a monochrome display terminal in the fall, to be followed in six months by a color model with an imaging option, according to a DEC official.

The family of display terminals from DEC will run with both VMS and Ultrix and will have access to all facilities in a network. The terminals expand the range

of platforms that take part in DEC's Network Application Services integration scheme. In addition to DECwindows, the terminals will use other common services such as the Compound Document Architecture and SQL Services. In contrast, IBM's Systems Application Architectural desktop windowing environment requires a PC/AT running OS/2 with Presentation Manager and does not make provision for character cell or other types of terminals.

Early users of X Window terminals are sold on the concept. Gerald Siddons, director of scientific computing for the division of epidemiology and biostatistics at the Dana-Farber Cancer Institute in Boston, has said that windowing terminals are perfect for many of his users — statisticians who work with a lot of text but do not need all the power of a

workstation. Siddons has purchased a handful of NCD terminals and is eagerly awaiting the DEC terminals.

According to market research firm International Data Corp. (IDC) in Framingham, Mass., 1,300 terminals were shipped by the end of the first quarter between NCD and Visual Technology, and the total number is expected to reach 8,000 for the U.S. by year's end.

In addition to the handful of players now offering windowing terminals, IDC predicts that others

*Continued on page 27*



DEC promises a terminal running DECwindows in the fall

### Low-end RISC systems boost MIServer line

BY J.A. SAVAGE  
CW STAFF

MOUNTAIN VIEW, Calif. — Adding more marketable low-end multiuser Unix machines to its MIServer line, Pyramid Technology Corp. last week announced two new products, an Office MIServer and a Department MIServer.

This follows a February an-

nouncement of its Corporate MIServer, a reduced instruction set computing (RISC) machine that can go up to 140 million instructions per second (MIPS) and scale from four to 12 processors.

"I don't think the part of corporate America that does mainframe computing is going for a [large] Unix machine. At the upper end, they won't sell many. At

the lower end, it's a different story," said analyst Robert Kidd at Datquest, Inc. in San Jose, Calif. But he said there is also more competition at the lower end and that there is "nothing spectacular" about the new systems.

Jeanette Sill-Holman, an analyst at Infocorp in Santa Clara, Calif., agreed there are "not many people out there who need a monster server" but said that the high end of the product line is available for growth.

"Lots of offices are looking to try this technology and see if it works," said Terry Reiffel, director of systems marketing at Pyramid.

At the lowest end, the Office MIServers are available with one or two processors and can support up to 128 users, according to the company. Those computers are based on Mips Computer Systems, Inc. RISC architecture. The minimum configuration starts at \$30,000.

The Department MIServers are based on Pyramid's proprietary RISC architecture. The computers can support up to 512 users with 56 MIPS in a one- to four-processor configuration, according to Pyramid. The minimum configuration for the Department MIServer is priced at \$136,000.

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69450		5000	FRI, FEB 20, 87
20110		1000	MON, MAR 30, 87
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360003	15985	500	TUE, FEB 10, 87
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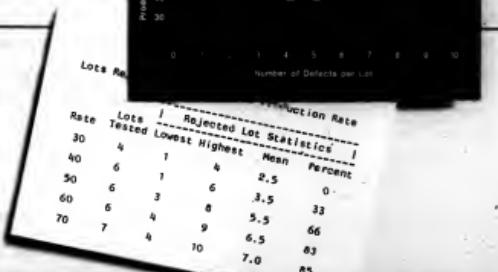
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		Lowest	Highest	Mean	
30	4	1	4	2.5	0
40	6	1	6	3.5	33
50	6	3	8	5.5	66
60	6	4	9	6.5	83
70	7	4	10	7.0	85



# UK firm updates with global net

BY MARYFRAN JOHNSON  
CW STAFF

A multinational firm whose roots extend to 19th-century England has jettisoned its hodgepodge of computers in favor of an integrated network of IBM machines and coordinated business and financial systems.

The worldwide installation of two dozen System/38s and Application System/400s by the London-based Johnson Matthey PLC is under way now, with eight AS/400 installations planned this year for its offices in the U.S., Europe and Asia.

"Our mission is to put more money in the bottom line," said Tom McLennan, information technology director for J.M.'s 12 North American sites. "We viewed the AS/400 as a product available worldwide, with a very strong distribution and support network."

The company is approximately midway through a five-year information technology strategy change that began in 1987. One agent of change in the company's high-tech approach was a major financial upheaval in 1986, blamed in part on poor information exchange between company offices and lack of proper internal controls. The problem cost the firm \$600 million in losses from its jewelry and banking lines and highlighted the need for a coordinated corporate environment.

The bank problem involved a number of bad investments and some deals in gold," McLennan explained. "Basically, it was a control breach. We didn't have the information we should have had."

"What the new system does is

provide a lot of consistent reporting, which provides information to management to allow better control," the information technology director added. "Mismanagement can still happen, of course, but it won't be through lack of accurate and available information."

With 10,000 employees in 28 countries, J.M. is the largest specialty metals supplier in the world that deals in platinum-group metals.

The company, founded in 1842, also has divisions supplying electronic materials to the semiconductor industry. It produces about 75% of the world's catalysts for catalytic converters.

"Essentially, we're integrating the fields into one corporation with central accounting," said company spokesman Joseph Fovey.

The company chose software packages for its business applications from Denver-based J. D. Edwards & Co. The manufacturing end of the business will rely on applications from Data 3 Systems, Inc. in Santa Rosa, Calif.

"We wanted fully integrated software designed to run on the System/38 and take advantage of its architecture," said Paul Pronstot, information systems manager at J.M.'s North American headquarters in Valley Forge, Pa. He and his 13-member staff function as in-house experts on the software, sending troubleshooters on the road as needed.

"One benefit of having common software is you can have a centralized center of expertise. We don't have to have experts in 10 different software packages," Pronstot said. "It's not

that often you get this cross-continent support for software."

That support was needed in Washington state, at one of the corporation's newly acquired businesses.

"We went cold turkey last October with the AS/400 accounting system and left our old one," said Tom Kastner, manager of Ruth Gordon, Inc., supervisor for Johnson Matthey Electronics in Spokane. "It's been nice to be able to call on people in Valley for help."

McLennan calls his information technology strategy a "cooker-cutter approach" — and what pops out of the oven is supposed to taste as sweet as increased productivity and cost savings. "The savings are pretty hard to quantify right now," McLennan said. "We're spending somewhere around \$50 million on this project, and we expect our return on investment to be about 35%."

Refocusing the company's information technologists on business applications and problems — rather than on writing code — was another important change, the information technology director said.

Unwilling to wait for the debut of the AS/400 in June 1986, J.M. began installing System/38s two years ago.

"Our System/38 strategy was really a folded 38/40 strategy before we knew the name [of the AS/400]," Pronstot said.

"We bought the 38s because that's what the new machine would be called. Silverstrike or whatever, it would be compatible."

While Digital Equipment Corp. in Maynard, Mass., was a strong contender, J.M. executives were won over by the broader range of vendor-supplied commercial software available for IBM's midrange machines.

## Light ages

**A**t Johnson Matthey Electronics' plant in San Diego, the firm went from an archaic computer time-sharing plan on a Xerox Corp. miniframe in Los Angeles to having its own IBM AS/400 on the premises.

"We love it. So far, so good," said William Desbret, site controller at the 58-employee company. "We've had our accounting system up and working for us for months."

Some initial "teething problems" — such as installation were quickly solved, Desbret said. "The disk drives and tape drive [weren't] the first week," he said. "The disk was out in less than 60 minutes both times," he said.

"When the tape drive failed, the machine phased up [IBM before we even knew about it]. I was very impressed."

Accounting efficiencies with Denver-based J. D. Edwards & Co. software running on the AS/400 "enabled us to avoid hiring another accounting person," Desbret said. "In another year, I expect the same efficiencies in our manufacturing."

By then, the firm will have installed a closed-loop manufacturing package from Data 3 Systems, Inc. in Santa Rosa, Calif. Eventually, all the company operations will be electronically linked.

"Right now, there's a lot of shuffling back and forth on the telephone," he said.

Desbret envisions a system flowing smoothly through computers — from the initial customer call through the accounting and payment process and finally to shipping the product out the door. "The worst thing you can do is say 'I'll ship Product X tomorrow and then not do it,'" he said. "We don't want to get that reputation."

MARYFRAN JOHNSON

"A lot more people are writing commercial systems software on IBM than DEC," Pronstot said.

J. D. Edwards is a vendor of business applications for the AS/400 and System/38 exclusively and has more than 1,250 customers worldwide, and company spokeswoman Amy Rovin.

Of particular interest to J.M. was the software's capabilities in multicurrency accounting. Among the 36 software packages the information technology experts examined,

few were able to process detailed financial transactions in up to 24 different currencies.

Given J.M.'s smaller operation, the ability to customize their own reports and provide consistent reporting throughout the corporation were other key factors in the strategy.

"When we bring up new organizations, it will cost less to integrate them into Johnson Matthey," McLennan noted. "If you don't do this kind of stuff, you'll be out of business."

## Tesseract, Walker to be financial software allies

BY ROBERT MORAN  
CW STAFF

Tesseract Corp. and Walker Interactive Systems this week entered into a strategic alliance to combine the power of their human resources and financial software for IBM's DB2 database.

The two San Francisco-based companies plan to develop a seamless integration of their software and to share resources for research and development. Although they will continue to sell their software independently, the companies will share facilities and sales and sup-

port services.

Peter Kastner, a vice-president of the Aberdeen Group, a consultancy in Boston, viewed the alliance as part of a larger trend to fill a shortage in the number of software houses that can fulfill the DB2 needs of Fortune 1,000 corporations. "We are projecting a further consolidation of software vendors in the industry," Kastner said, "and you will see it on the software side as well."



**Brownlow's joint product is ready**

According to Kastner, Aberdeen research indicates that the majority of large IBM sites have implemented DB2 as their strategic direction, leaving the database as the de facto standard for large corporations. As a result, Kastner said, "it becomes a no-brainer for software houses to begin to blend their applications using DB2."

The companies plan, for example, to integrate such system functions as employee expense, third-party payment and payroll accounting across both systems. In addition, the products will provide common user access, common tool sets and data sharing. To eliminate data redundancies, for ex-

ample, data common to both systems will be maintained in one place.

Prices have not been set, but David Brownlow, president of Walker Interactive Systems, said that a joint product is available, and the companies expect to deliver a version with sensible integration by next quarter.

According to Brownlow, "It will be many years before the so-called single vendor has an integrated DB2 product line and can even challenge us."

Not so, said Kastner, who does not view the companies as presenting an immediate competitive challenge to the market leaders. Management Science America, Inc. and Mc-

Cormack & Dodge Corp. Both companies have announced systems that enable cooperative work among IBM's DB2 products.

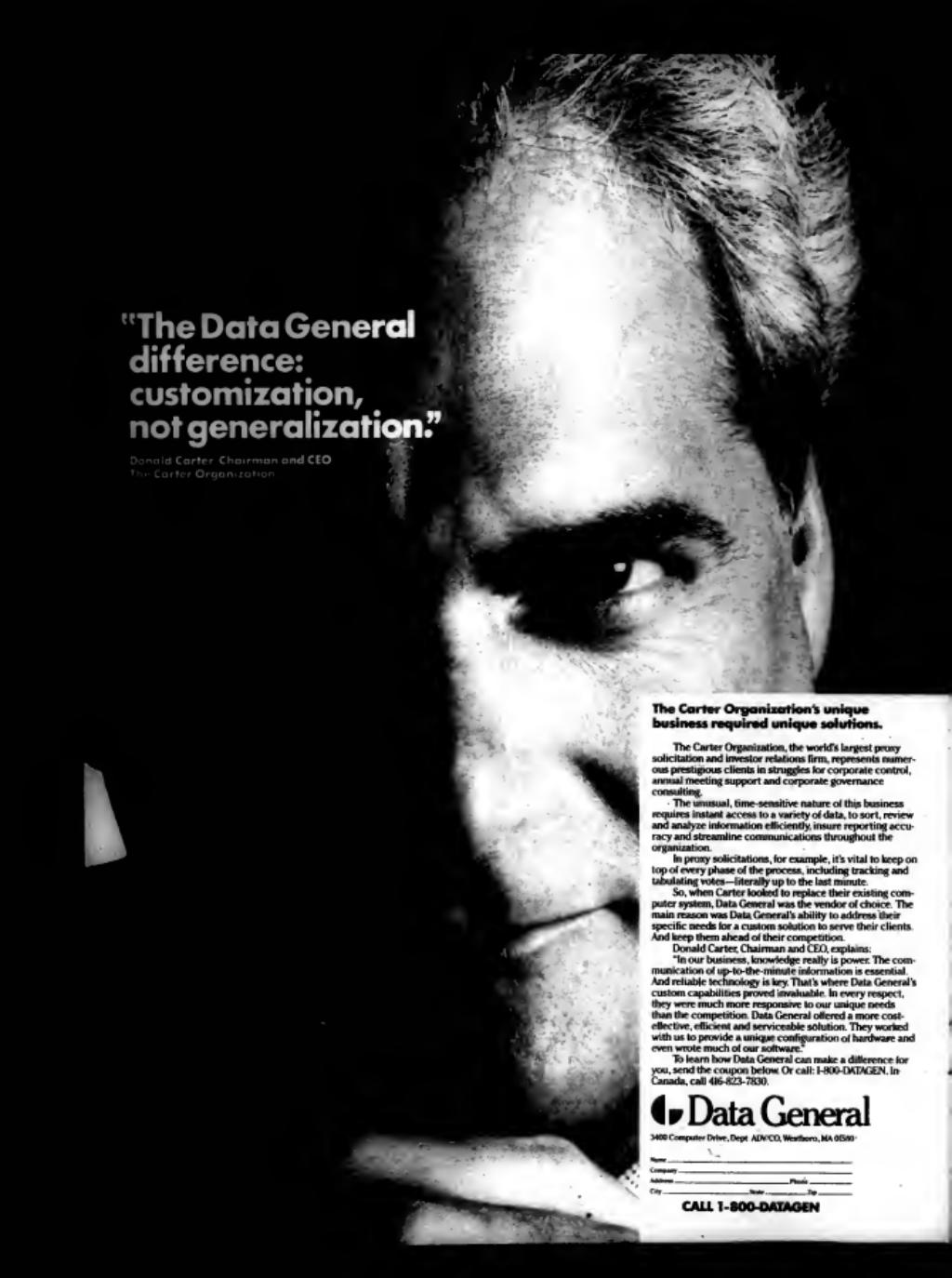
According to Brownlow, which includes DB2, Kastner said. By working together, however, Tesseract and Walker can gain size, marketing clout and potentially more sales, Kastner said.

The alliance was formalized after both companies netted a \$1.1 million contract with Stone and Webster, Inc., an engineering company based in Boston.

William Lockenby, president of Tesseract, said, "Stone and Webster has the impetus for an alliance but the straw that broke the camel's back."



**Lockenby is president of Tesseract**



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# DEC downsizes VAX chip

BY ROSEMARY HAMILTON  
CW STAFF

When Digital Equipment Corp. announced the VAX 6000 Model 400 earlier this month, the company was not just trotting out the latest revved-up version of its 6000 microprocessor.

Instead, the firm was introducing a new CMOS-based chip on which the fundamentals of DEC's 8800 series were brought down to a microprocessor level.

In short, DEC took the 8800's microprocessor-based configuration and reduced it to one 11- by 10-in. microproces-

sor board, according to Robert Supnik, a DEC corporate consulting engineer who serves as technical director of the company's microprocessor development group. DEC, however, did not have much of a choice. The CMOS-based microprocessor used in the first two generations of 6000 systems — the 6300 and 6300 — quickly reached its limits. The 6200 processor runs at 80 nsec. According to Supnik, that CMOS implementation could have been speeded up only slightly more.

What DEC wasted was a microprocess-

or that could run at 28 nsec, and it was able to get that with this miniaturized 8800 chip. Supnik said his group could have tried other design implementations, but it scaled down the 8800 because it was a known, proven technology.

"This one was the most straightforward way," he said. "We could have argued that there were better ways to do it, but it was the easiest."

The project took three years. According to Supnik, not all of the 8800's attributes could be pulled down to the microprocessor level, but the team was able to implement the basic architectural principles on the smaller scale.

For example, the 8800's pipeline design, which allows more than one system instruction to be in progress at one time, was duplicated on the 6000 Model 400.

Both used a six-stage pipeline design, whereas the first two generations of 6000 systems were restricted to a four-stage pipeline.

However, Supnik said the team was not able to bring over the 8800's control-store program, which is microcode that implements the system's instruction set. "On the 8800, there are 274 million bits of microcode. On the 6400 chip set, there are 85,000." That kind of reduction requires a lot of rethinking.

"We looked at some designs that would have involved using more chips," Supnik said. "But we concluded that they didn't bring any advantage to the customer. The advantage of using the 8800 is that some of our design problems were solved in advance."

## Windowing

CONTINUED FROM PAGE 21

ers, including Hewlett-Packard Co., will enter the market. Bill Carrico, president of NCD, said that initial sales have been largely to scientific- and engineering-oriented customers. He said he is, however, seeing more interest from the commercial world. Carrico suggested that DEC, by offering a Decwindows terminal for VMS, will begin to open up the commercial marketplace.

David Rensaud, director of technical services at Grinnell Mutual Reinsurance Co. in Grinnell, Iowa, is one commercial user who agrees. "A low-end imaging workstation would be of high interest to us," Rensaud said. "It would be added that he is interested in a tightly integrated product that DEC could offer."

Grinnell Mutual has different needs in terms of complexity and throughput, Rensaud said. Although many users are

**D**EC IS A terminal-to-host-oriented company. It makes a lot of sense for them."

BILL CARRICO  
NETWORK COMPUTING DEVICES

currently using personal computers running Microsoft Windows, Rensaud said windowing terminals would be advantageous in bringing DEC functionality, such as imaging capabilities, to users not taking advantage of these features at this time. Such terminals "but only if the PC-emulation capacity is adequate enough in terms of speed and functionality."

A Decwindows terminal offering from DEC had been anticipated. "DEC is a terminal-to-host-oriented company," NCD's Carrico said. "It makes a lot of sense for them."

However, reports surfaced earlier this year that the prototypes were slow and mercifully resource-conservative, one source inside the company disclosed that four terminals running Decwindows could bring a Microvax "to its knees."

However, DEC officials claimed the upcoming terminals would perform faster and at a more competitive price than what is currently available on the market. A DEC spokesman said memory requirements will vary depending on the applica-

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## Gibson

CONTINUED FROM PAGE 21

emulate IBM by building a runtime version of its DB2 with the VMS operating system. Because a user's reliance on a DBMS is so great — installing a DBMS offers a commitment of a decade or more — many users feel better when they are buying both hardware and DBMSs from a single hardware vendor.

A user I spoke with recently said he felt secure using a fourth-generation language (4GL) from an independent software vendor, but he did not have the same feeling of security buying a DBMS from an independent. The specter of DBMS vendor having problems and being unable to support the product was too daunting.

**C**ULLINET'S problem was that in the face of a changing database landscape, it failed to perceive the changes. If its timing in the 1970s was great, its timing in the 1980s was terrible.

ing. On the other hand, he said he would find it comparatively easy to switch to another 4GL, if he had to.

Cullinet's fate will just serve to reinforce this trend by confirming users' suspicions of vendor instability. The list of independent software vendors that have been suffering is long and growing. There are contrarian firms, however, such as Oracle, which, despite the predictions of some software industry analysts, have yet to hit the wall.

Cullinet's problem was that in the face of a changing database landscape, it failed to perceive the changes. If its timing in the 1970s was great, its timing in the 1980s was terrible. Cullinet actually did all the right things but at all the wrong times. A case can be made that Cullinet could have been as successful as Oracle in the 1980s if its timing had been better.

The difficulty of reversing Cullinet's downward spiral is highlighted by comments that Cullinet's Bob Weiler made recently to a *Computerworld* reporter. Weiler said that an article in the *Wall Street Journal* that appeared earlier this year about Cullinet's woes cost the firm \$4 million in delayed or canceled sales. Weiler said he could attribute the losses to the article. Each time Cullinet coughed, it drove more potential customers away.

Thus, user perception is more important than reality. Users will wait patiently for IBM because they believe IBM will come through in the end. But should an independent vendor show weakness, users will become nervous and bolt.

The great challenge for Computer Associates, now that it has swallowed Cullinet, is to fulfill the promise of stability that is implied by its ever-increasing size. All the apprehension that have been cast its way will be forgotten if it proves capable of providing choices to users over the long term, something its component companies, in the end, could not do.

Gibson is *Computerworld*'s senior editor, software.

## HARD BITS

## IPL boosts 4381 memory line

IPL Systems, Inc. beefed up its memory product line for the IBM 4381 last week by adding 8M- and 4M-byte cards for the higher end 4381 models. Last year, the company came out with 2M- and 1M-byte add-ons for the lower end 4381s. The memory cards will work with the 4381 Groups 22 through 24 products as well as the IBM MVS/ESA-capable systems, the 91E and 92E, according to the company. An early release program

for the memory cards has just begun.

Data General Corp. announced a plan recently to service and repair non-DG products, including computer equipment and peripherals. The company said it will extend customers' maintenance agreements to include up to 100 products from other vendors that they may have linked to their DG systems. The products include modems, disk drives, displays, printers and controllers made by such companies as Control Data Corp., IBM, Storage Technology Corp. and Hewlett-Packard Co.

DG also announced that Sortex Data Systems will offer its Sortex automated student and financial accounting software on DG's MC line of proprietary minicom-

puters as well as its newer reduced instruction set computing-based systems, called the Avion line.

Tech Data Corp., a reseller of microcomputers and minicomputers, recently signed a deal with Unisys Corp. to resell the company's low-end Unix-based systems. Unisys said the deal could represent up to \$50 million in new business. This is Tech Data's first Unix-based product. The agreement calls for Tech Data to resell the U 6000 series, which is based on the Intel Corp. 80386 microprocessor.

Sooy Microsystems Co. said it will use Parallel Graphics, Inc.'s graphics and videographics display controllers as part of its Newsline of Unix systems.

# UNIX, UNISYS AND YOU.

## NEW PRODUCTS — SOFTWARE

## Development tools

A system that contains five commands and manages changes in the product design and development life cycle has been released by Team One Systems, Inc.

Called the Engineering Change Order (ECO) system, the product reportedly integrates the current environment of tools and applications of AT&T's Unix operating system commands and utilities and with other Team One products such as the Object-Oriented database management system and applications. Available on Sun Microsystems, Inc.

workstations running SunOS Release 3.5 or 4.0, ECO costs \$590 more per node.

**Team One**  
Suite 178  
2700 Augustine Drive  
Santa Clara, Calif. 95054  
408-986-9191

Hypersoft Corp. has announced a VAX-based tool for reverse-engineering of existing applications. Applications, however, is said to provide both an interactive and hard-copy road map of Cobol applications. The vendor explained that the ability to see the application logic and program-control flow helps developers analyze

changes to code and aids in training on applications. The tool handles Cobol from Digital Equipment Corp.'s VAX, Decays, Decays-10s and -20s and IBM mainframes.

Prices vary according to the CPU, ranging from \$3,000 for the Vaxstation to \$40,200 for the VAX 8840.

**Hypersoft**  
675 Massachusetts Ave.  
Cambridge, Mass. 02139  
617-864-8860

Flexus International Corp. has released Version 1.0 of CICS SP1, a microcomputer-based programming tool used to design and implement Cobol- and mainframe-based end-user data entry systems.

The software reportedly allows users

to develop interfaces for applications before writing any Cobol code. The seven components of the interface can be incorporated subsequently into a working system model and prototyped at the micro level, the company said. The product is priced at \$795.

**Flexus International**  
P.O. Box 9199  
Morristown, N.J. 07963  
201-495-4724

## Applications packages

Infolink Software, Inc. has announced upgrades to its IBM DB2 application product that reportedly make it easier to help manage changes and problems in the production environment of a mainframe site.

According to Infolink, Information Management Problems and Change Tracking (Impact) is a menu-driven system using IBM's ISPF and SQL to provide options that guide the user through the system and enable him to select appropriate panels for controlling changes to be implemented and creating customized reports.

A perpetual license costs \$35,000.

**Infolink Software**  
Suite 603  
1400 Fashion Island Blvd.  
Santa Ana, Calif. 92404  
415-574-3305

Batch Process Technologies, Inc. has released Batch, a picture-oriented database support package for use with the firm's Batches simulation software product.

Designed for simulating batch and semicontinuous chemical processes, Batch allows users to build and analyze models via on-screen graphical displays, the vendor said. Features reportedly include animation playback and result summarization capabilities.

Depending on the type of hardware configuration available, Batch and Batches together are priced from \$50,000 to \$95,000.

**Batch Process Technologies**  
P.O. Box 2001  
W. Lafayette, Ind. 47906  
317-463-6473

Global Software, Inc. has announced its Miscellaneous Customer Billing and Accounts Receivable System (MCBARS) for the utility industry.

Running on IBM mainframes and minicomputers, including the Application System/400, MCBARS reportedly provides miscellaneous billing for damage claims, service construction and maintenance.

MCBARS costs from \$125,000 to \$250,000, depending on hardware configuration.

**Global Software**  
P.O. Box 51248  
Raleigh, N.C. 27615  
800-366-7980

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# PCs & WORKSTATIONS

## MICRO BITS

Douglas Barney

### Kingdom clone



Compaq on a tightrope. The folks at Compaq are an agile lot. When personal computer standards bearer IBM introduced a new bus, Compaq laughed but offered no technical response. And sales climbed.

Then, when this IBM Micro Channel bus got a head of steam, Compaq gingerly rallied its rivals to announce EISA, a functional equivalent that will ship some 2½ years after IBM's original product. Despite the bizarre and belated positioning, sales climbed.

Now, to confuse customers that had finally felt comfortable, Compaq is moving to become as murky as the fad that coaxed out of the *Executive Vortex*, and just as slippery.

The latest is a licensing deal

*Continued on page 26*

#### Inside

- GTE Electrical lights up energy-saving users. Page 33.
- Better handheld data with the help of PCs. Page 33.
- Grid Systems offers extra-light laptop. Page 37.

## Designs for the third dimension

### ON SITE

BY JAMES DALY  
CWT STAFF

LIVERMORE, Calif. — Time was, the only thing a pair of 3-D glasses was good for was making it seem as if the Creature from the Black Lagoon were right beside you in the movie theater.

But Peter Luft and Gary Bradley were working to change that. At the Lawrence Livermore National Laboratory here, the two designers have developed a way to use a pair of card-

board 3-D glasses to transform intricate flat-screen engineering drawings into wire-frame models that appear as if you could reach through the terminals' screen and grab them.

Workstation users accustomed to spending thousands of dollars for realistic on-screen three-dimensional representations are also going to find one aspect of the methodology particularly attractive: It requires no new hardware or software. The only cost is about 39 cents, for the glasses.

"The great thing about 3-D is

that it's unambiguous," Luft said. "And if you don't have a good idea of what you're designing or how it will eventually look, you're heading for big trouble."

Traditionally, designers have needed to draw a front, top and side view of an object. Shading is added to heighten the sense of proportion a two-dimensional drawing often lacks. But even with that addition, the viewer still needs to space the image with a little imagination to get an idea of how it would actually appear.

Luft and Bradley's method is

an attempt to teach an old dog some new tricks. The procedure begins with a view of the drawing in red. The image is then rotated two degrees about its vertical axis and drawn in cyan. When viewed through the glasses — which have one red lens and one cyan lens — each eye sees a slightly different image, and the 3-D effect snaps into place.

Luft stumbled upon the idea last August while passing over the design of an object. An ex-photography student and a long-time admirer of the lab's computer-aided design system, Luft had a pair of 3-D glasses placed to the wall of a co-worker's cubicle.

*Continued on page 36*

## Savvy users can save on hot service market

BY JAMES DALY  
CWT STAFF

The dramatic increase in workstation price and performance competition has translated into a larger-thinking business that is increasingly offering for service and warranty policies to back up these machines, according to a report recently issued by The Legg-Wray Group, Inc., research firm.

As the workstation field becomes more crowded and competitive, vendors have turned the service and warranty market into their next selling point, often trimming prices and packing features into their after-sale service packages in an attempt to win customers, the Lexington, Mass.-based firm said.

The days of charging a fixed maintenance fee are gone, but vendors have sweetened the pot by bundling support into initial sale packages, often throwing in training and implementation assistance services at no additional charge.

Consequently, vendors have also sought to broaden their services distribution support by formulating incentive programs to encourage resellers or alternate channel support.

The result is not only a bargain for first-time users but also a foot in the door for vendors looking to enjoy the financial windfall when future support is needed.

"Cost of ownership represents an area of increasing im-

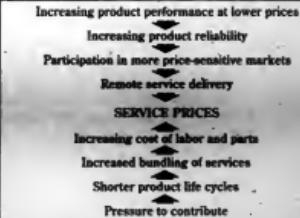
portance," the report said.

The report also found, however, that shorter warranty and services policies prevail. Despite a movement to one-year warran-

ties by vendors such as Digital Equipment Corp. and IBM, the report concluded that most other warranties tend to be shorter, usually only about 90 days.

### Service squeeze

*For workstation service and support are being forged by pressures from above and below*



SOURCE: THE LEGG-WRAY GROUP, INC.

CHART: CHRISTOPHER D. TUCKER/PCW

## Some folks think that COBOL, the language of the past, may also be the language of the future!

"Micro Focus COBOL for Presentation Manager has suddenly become the right language." *BYTEweek*, 6/19/89

"And COBOL, the language everybody uses without admitting to it — also refuses to go into the night of old technology... Micro Focus appears ready to bring the old-time language into the brave new world of graphical user interfaces." *PC Week*, 6/5/89

"Micro Focus COBOL/2 Workbench Awarded 1989 Professional Solutions Award." *PC Tech Journal*

"The COBOL/2 Workbench, available from Palo Alto based Micro Focus, Inc., is by far the most powerful and complete PC-based COBOL development and maintenance toolset. This package is the Cadillac of PC COBOL toolsets." *System Builder Magazine*, 1/89

"Micro Focus' ANIMATOR is a sparkling example of the reason why the PC-based COBOL workstation represents a quantum leap in programmer productivity." *Database Programming & Design*, 10/88

"Could COBOL be the key to the success of OS/2?" *BYTEweek*, 6/19/89

"Micro Focus Awarded Four Out of Four Ribbons for 'Overall Value' in Readers' Choice Awards." *Information WEEK*, 4/24/89

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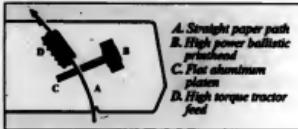
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# Fed red tape blunts PC cutting edge

BY DOUGLAS BARNEY  
CW STAFF

WASHINGTON, D.C. — While users praise progress, not all is rosy in the land of government personal computers.

The federal government has been engaged in a massive deployment of PCs aimed at increasing worker efficiency and allowing the government to provide adequate services regardless of budgetary conditions.

Despite the large buys, critics charge that the often tedious procurement process can result in the wrong type of technology that is behind the times, since the original specification may not take into account more re-

cent technical advances.

Add to that lower pay scales for government IS workers, and you have equipment that may be out of date and not fully optimized or supported.

"The government is not on the leading edge of technology because the procurement can take up to two years," said Jerry Schneider, chairman of the Fed Pro-

gram Committee, a group that runs an annual conference and exposition for government information systems professionals.

Ironically, buying individual PCs is apparently not a problem. "It is almost getting as easy as buying a pencil," Schneider said. In addition, government agencies are buying both PCs in private industry. While they can easily acquire PCs, they often have difficulty attracting enough talent to take advantage of the equipment. In particular, skilled college graduates with a focus on computer science are flocking to business and steering clear of government work.

"We don't have the applications talent because of pay scales. For instance, we have no programmers on our staff," said Jim Yurman, information management director for the Envi-

ronmental Protection Agency's Hazardous Waste Program.

Even if government agencies buy leading edge technology, it takes skilled people to implement and support complex new systems.

## Only so far

"Without money, we will hit a wall. We won't be able to take advantage of all this stuff like OS/386, cooperative processing, and OS/2," Yurman said. Yurman's group has acquired more than 1,000 PCs and currently has one for every two professional workers. One Pentagon IS professional agreed. "I do not want to get the people straight out of school who are aware of the

state of the art," said Craig Hirsh, an official of the Pentagon's Macintosh user group.

Ironically, it often costs more to contract government work out to independents, some users said. Other problems with contractors are lack of control, instability of the contractor and an inability of the agency to support the contractor's system. Some issues have led many government areas to use packaged software, even if it is not as effective as a custom solution, the users said.

Some procurement contracts, however, are clearly on the leading edge. The Social Security Administration will soon award a contract for 8,000 PCs based on the Intel Corp. 80386 processor. The SSA is specifying a high-end PC so that it can keep up with software advances that emerge during the next five years, officials said.

## New bat design jogs out from university dugout

Researchers use PCs to wield radical new stick

BY RICHARD PASTORE  
CW STAFF

STARKVILLE, Miss. — A tennis ball bat is the shape of a tennis racket would probably cause some ball players to scoff — that is, until they found that it might make them better hitters.

This departure in bat design, though somewhat extreme, outperforms the traditional bat, according to researchers at Mississippi State University, who are using computers to find ways to make better bats. More subtle and practical design improvements are resulting from a personal computer-driven study that is under way at the university's aerospace engineering department.

"We are interested in what happens to the bat during impact, how strong does a bat need to be to withstand the impact and what you can do in terms of structure to improve the performance of the bat," explained Keith Koenig, associate professor of aerospace engineering.

A Dell Computer Corp. PCs Limited 256 equipped with three Metabyte Corp. data acquisition boards controls the nearly simultaneous actions of a pitching cannon, hydraulic batting machine, cameras and IBM Super Video Graphics Array monitors.

Three Intel Corp. 80386-based IBM compatibles with Intel 80387 math coprocessors apply 6.5M bytes of memory to store and analyze variables such as stress, deflection and deformation. The researchers then use homegrown software and a commercial finite element analysis program

"But that is not what we found; the strength characteristics of different materials does influence the performance. If you make the bat out of a material that deforms and rebounds on impact like a trampoline, the ball will gain higher velocity."

The computers have shown that the most effective distribution of weight in the bat — the proportion of weight in the barrel vs. that in the handle — is not the best. An intermediate would have it. Koenig would not elaborate, since much of this data is pro-

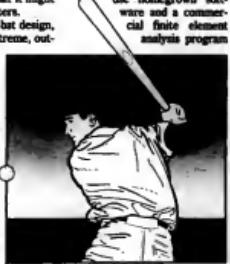
prietary to the program's backers; bat makers Worth, Inc., which has funded the study since 1983, Easton, Aluminum, Inc., and Sporting Goods Worldwide.

Like a double to left field in Fenway Park, some of the project's bat designs are off the wall.

"There are some rather strange-looking bats in the works," such as one reminiscent of a tennis racket, Koenig said. "They would work, but nothing like a baseball bat." Koenig said the NCAA or American Softball Association have certain restrictions on bat

size, weight and length, so whether you'll ever see one out on the diamond is unclear.

Many bats on the market today, primarily Worth products, are designed with graphite-based composite materials recommended by the research project. At first, these composites were not legal, but two years ago the sanctioning bodies agreed to allow them. With a portable 386-based PC on the way, Koenig said he hopes to conduct experiments and bat analyses in real hitting situations.



FRANCIS O'CONNELL

to predict the flight path of the ball after impact and how the size, shape, weight and materials of the bat will affect performance.

These studies have yielded some surprising information. For instance, lighter bats make for better hitters. Besides the fact that light bats are easier to control, the lighter weight is directly related to higher ball velocity in certain situations, Koenig said.

Materials make a big difference in performance. Koenig originally thought, "It doesn't matter what you make the bat out of, as long as it's made very strong." He said.

## GTE's software idea comes to light

Energy-saving package allows customers to answer their own 'what-ifs'

BY RICHARD PASTORE  
CW STAFF

DANVERS, Mass. — GTE Electrical Products has announced a five-part software package designed to shed light on users' ever-increasing illumination questions.

Sylvia, shorthand for Sylvian Information Analysis, will allow current and potential Sylvian lamp customers to "sit down in front of the screen and play 'what-if' games," said Arnold Tucker, the company's manager of technical programs.

Users with IBM Personal Computers or compatibles can use the program to compare total costs of installing and operating different lighting systems — both Sylvian brands and competition.

**When investment**  
Users can also calculate the cost to replace an old system with an energy-saving Sylvian system and determine the resulting return on investment. The software's built-in database contains specifications and prices for 400 lamp types. Sylvia is sophisticated enough

to take into account that Sylvian products give off less heat than standard lighting, which consequently reduces air-conditioning costs.

**Standard lighting**  
Sylvia is targeted toward lighting designers, architects and electrical distributors. Users do not have to be computer sophisticates to operate the software, Tucker noted.



GTE's *Vander* buyer package will soon clients can

**Lighting costs**, the company said. "In the case of Minnetonka, [the savings] could be substantial because you're probably cooling 11 or 12 months out of the year," Tucker said.

For customers situated in northern climates, Sylvian also figures in the cost for heating needed to make up for the lost by replacement of the hotter

**Money well spent**  
"We've spent an awful lot of time making this program user-friendly," Tucker said. The user only needs to supply figures for his current lighting installation's operating costs. GTE designed the program so that the results of the analyses "look like a smooth transition from the input to an answer that you can readily utilize," Tucker said.

GTE is betting that Sylvia, its first foray into computer software, will lead to an increased use of Sylvian's lighting systems. However, Tucker emphasized not every analysis will yield favorable results for Sylvian. For instance, "to replace old lighting with new lighting might not be recommended in certain situations," he said.

Sylvia, which began shipping last week, runs on IBM PCs and compatibles and retails for \$34.95.

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## *The Merging of PC LANs and 3270 Networks*

*A Prospective*

MANAGEMENT INFORMATION SYSTEMS WEEK

### LAN Acquisitions Shift To Corporate MIS Level

By George Knapp

**BOSTON**—For many years, local area networks have been a shift in the balance of the equipment and software market. Now, however, the nature of the LAN is changing, too.

the best in the U.S. "The likely leading computing direction is to do with the shift in the balance of the equipment and software market."

The new IRMALAN

MAGAZINE 8 OCTOBER 11, 1990

PC WEEK

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### IRMALAN Products Establish DCA as Leader in LAN Mainframe Gateways

By David Strom

Digital Communications Associates' (DCA) new IRMALAN 3725 Gateway, IRMALAN SNA Workstation version 2 and APA Workstation version 2 products are a big step for the Alpharetta, Ga., communications firm. While the new products DCA has the strongest local area network (LAN) mainframe-gateway product line of

any company, including IBM.

The new IRMALAN

MAGAZINE 8 OCTOBER 11, 1990

### DCA Fulfils 10NET's Charter With Several LAN Products

By Tim Morrison

NEW YORK—10NET Communications, the In-

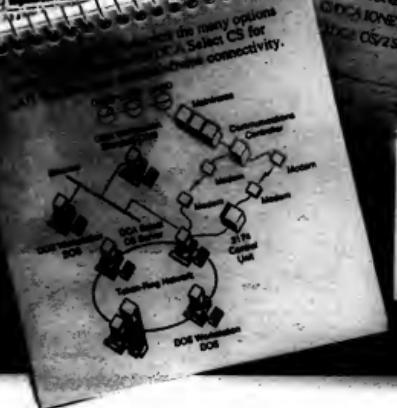
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## Designs

CONTINUED FROM PAGE 31

the one afternoon and the proverbial light-bulb went on above his head. Since then, the glasses have become an important tool in Luft's workshop, during which misperceptions can turn into costly and potentially job-threatening failures. They can also be big money-savers, allowing a user to come up with a speed quickly on a drawing that has just been handed off. Luft cited the case of one Oregon comp-

any that has reduced a model maker's four-hour orientation time to five minutes.

Although the 3-D effect may be unnecessary in creating objects that are flat and simple, it can be invaluable when creating a widget that is a little more unusual in design or placement.

### Critical pieces

Luft's current project involves designing a device that measures the heat of a laser. Although it is only a small component in what will eventually be a two-story laser system, this piece is critical. After he does the 3-D glasses, the on-screen image, which had seemed a confusing knot of intersecting lines and circles, suddenly appears as a 3-D image. "The stereo image doesn't require any interpretation," he said. "What

you see is what you get."

Luft and Bradley have put together a formal research paper that they are making available through the nuclear weapons lab's affairs office and that they hope to present at the Annual International Computer User Conference in Boston in September.



The wonderful thing about 3-D glasses and computers is that the glasses cost just about 39 cents

## Barney

CONTINUED FROM PAGE 31

Compaq reached with IBM, allowing the Houston clone kings to produce Micro Channel machines.

Immediately after the announcement, words started to flow out of both sides of Compaq officials' mouths. First, officials said the broad patent agreement had nothing to do with plans for the Micro Channel. They also said that if customers demand the Micro Channel, they'd be "foolish or crazy" not to have one for sale.

**N**O MATTER what Compaq says or does, it will be way wrong and will have to do some pretty fancy, political-like footwork to reverse. So if it produces a Micro Channel machine when it needs for Fortune 1,000 accounts that are already standardized on the Micro Channel but still want a compatible alternative, customers will wonder who took so long and why the firm pooh-poohed any customer moves to this platform. The company is going to look awfully hypocritical.

If the firm presses on with EISA and it fails, customers are going to wonder why they were led astray by an insignificant and misguided bus architecture. Compaq is going to look like it can't read the market. The only way Compaq can avoid this sorry state is if EISA succeeds. But then why in creation would Compaq because the Micro Channel? And why did it take so long to decide that a better bus was appropriate? Customers are sure to ask.

In the long run, it doesn't matter for Compaq. Any way you cut it, sales will probably climb. That is because people love machines that are optimized in every way for speed without sacrificing compatibility. Regardless of bus architectures, Compaq will continue to build these types of systems.

Still, there is risk. We all know what happens to those that fall off the tight-rope. You hit the ground, or you wind up on the wire, hanging awkwardly. Either way is painful, and in the worst case, awfully messy.

**Barney** is a Computerworld senior editor, PCs and workstations.

He also doesn't realize Hewlett-Packard makes PCs.



That's unfortunate. Because Hewlett-Packard has a line of eight high-performance personal computers. PCs which range from desktop and floor-mount Intel 386-based powerhouses to entry-level 8086-compatibles. PCs which offer you a better way of doing business.

Hewlett-Packard personal computers give you plenty of opportunity for expansion. As



The HP Vectra Q6/20 PC, one in a line of eight PCs from Hewlett-Packard.

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## NEW PRODUCTS

## Systems

A 9½-pound battery-powered laptop with a 20M-byte hard drive has been announced by Grid Systems Corp.

The Gridlite XL (regarding) has an optional 20M-byte 3½-inch hard drive from PrairieTech Corp. and incorporates a high-contrast, low-power black-and-white display. The reflective LCD display with a 12-to-1 contrast ratio is said to produce text and graphics that are easily read in different lighting conditions.

According to the company, standard features include 128K bytes of random-

access memory; a 3½-in., 1.44M-byte floppy drive; and parallel, serial and red-green-blue ports.

The standard configuration is priced at \$1,950.

**Grid Systems**  
47211 Lakeview Blvd.  
Fremont, Calif. 94537  
415-656-4700

## Data storage

A 940M-byte optical subsystem for microcomputers has been announced by Micro Design International, Inc. (MDI).

According to the company, the Laser-

bank 940 is a write-once read-many disk drive system that appears to most operating systems to be a standard hard drive. The drive reportedly has an access time of 90 msec and includes an optical disk drive, a small computer systems interface for the MS-DOS or Xenix operating system, cabling, software drivers and a user's manual.

MDI's Optical Peripheral Access Link library of applications that allow programmers to directly access the optical disk drive within an application sells for \$4,000. The optical subsystem price starts at \$4,095.

**MDI**  
6985 University Blvd.  
Winter Park, Fla. 32792  
407-677-6333

## Software applications packages

Imagraph Corp. has announced a viewpoint accelerator for Autodesk, Inc.'s AutoCAD Release 10.

According to the company, Imaview is an extension to Imagraph's zoom/pan/rotate display list driver for AutoCAD called Imaview. Imaview reportedly generates multiple viewpoints from a single view up to 50 times faster. In addition to its standard functions, the accelerator is said to allow drawings to be edited, zoomed and panned to any size in any window.

Available immediately, Imaview sells for \$195.

**Imagraph**  
11 Elizabeth Dr.  
Chelmsford, Mass. 01824  
508-256-4624

A subscription to a personal computer database of article summaries from 13 business publications is available from InfoSystems, Inc.

According to the company, the first issue of the Business Currents database subscription includes software, documentation and a database of approximately 12,000 article summaries covering the most recent year. Monthly updates issued on floppy disks contain approximately 1,000 new summaries, and update software maintains availability of the last 12 months of coverage.

The product runs on IBM Personal Computer-compatible with MS-DOS 3.1 or higher, 4.22M bytes of available hard-disk space and 390K bytes of available MS-DOS memory.

Prices are \$229 for the first issue and \$22 for each monthly update. An introductory, one-year subscription costs \$389.

**InfoSystems**  
723 Washington St.  
Newton, Mass. 02160  
617-963-6868

## Utilities

A programmer's tool that lets users print over a dozen bar-code types within their own programs has been made available from Computer Connection.

Called Code Master Release II, the tool reportedly offers object and library files to print bar codes, demonstration programs for each language supported and optional source code. Source code allows the user to add print drivers and change the programs for special needs.

Written in C language for compatibility with PC-DOS/MS-DOS 2.0 or higher, Unix or OS/2 operating systems, the software costs \$349 without source code, and \$369 with code.

**Computer Connection**  
2316 S. Barstow St.  
Eau Claire, Wis. 54701  
715-833-2331

Attachmate Corp. has released an upgrade of its 3270 personal computer mainframe emulation software.

According to the company, Extra 1.4 requires up to 50% less memory to run. It speeds file-transfer capability through the use of larger packet sizes and the addition of concurrent file transfer with DOS sessions. The product lists at \$425, with upgrades to previous versions available for \$75 each.

Continued on page 38

## Quarterly Operating Profits

2nd 3rd 4th

## PC-IT CAREERS

well as plenty of options. At the high end, you can get up to 8 accessory slots, 620 Mbytes of hard disk storage, and 16 Mbytes of RAM. And on all models, you get a choice of video solutions and the flexibility of using either 5.25" or 3.5" disks.

Beyond this, an investment in Hewlett-Packard PCs allows you to choose confidently from thousands of software applications and peripherals. HP's strict

adherence to industry standards insures compatibility. Now, and into the future.

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Finally, every PC made by

Hewlett-Packard is backed by an extensive network of trained, authorized dealers. For more information and the name of your nearest dealer, call 1-800-752-0900. You'll soon realize what an HP personal computer can do for you.

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 **HEWLETT  
PACKARD**

Continued from page 36

**Attachment**  
13331 S. E. 36th St.  
Bellevue, Wash. 98006  
206-644-4010

#### Macintosh products

Visual Business Systems, Inc. has announced a graphics business software package for the

Apple Computer, Inc. Macintosh II computer.

Called Visual Business No. 5, the software reportedly provides shading in solid, multicolored, angled or spotlighted backgrounds, perspective, three columns, scattergrams or pictures. Several different fonts are also included, the company said. A proprietary software rasterizer is provided free with the

introductory package. The software is priced at \$395.

**Visual Business Systems**  
700 Lake St.  
Ramsey, N.J. 07446  
201-327-2526

Enabling Technologies, Inc. has announced a three-dimensional desktop graphics software tool capable of operating in either an Apple Computer, Inc. Macintosh

or IBM Personal Computer environment.

Called Zing, the product reportedly allows publishers, presenters and graphics artists to create, shape, shade, color and edit three-dimensional objects. The package is compatible with Aldus Corp.'s PageMaker, Microsoft Corp.'s Word, Adobe Systems, Inc.'s Illustrator and several other software applica-

tions. It is priced at \$199.95 and will be distributed by Mindscape, Inc.

**Mandscape**  
3444 Dundee Road  
Northbrook, IL 60062  
312-480-7667

#### Development tools

Hewlett-Packard Co. has announced HP ME10D, a high-end software package for mechanical design and drafting that runs on IBM and Compaq Computer Corp. personal computers as well as the HP Vectra PC.

This is the first offering of HP computer-aided design software on competitive hardware platforms, according to the company. The package is reported to be a full-function DOS version of HP's AT&T Unix System V-based software for HP 9000 industrial workstations. The HP ME10D package costs \$6,495. HP

3000 Hanover St.  
Palo Alto, Calif. 94304  
800-752-0900

MCAE Technologies, Inc. has announced its Conceptual Engineering, Design and Reporting (CEDAR) software for IBM Personal Computers running Microsoft Corp.'s Windows.

The software incorporates techniques that allow data to be imported in a single pass to geometries for creating two-dimensional concept models, the vendor said. The geometries in the models can reportedly be converted to dimensions, mass properties and engineering calculations. The program is available for a limited time at an introductory price of \$495, according to the vendor.

**MCAE Technologies**  
3473 Nova Scotia Ave.  
San Jose, Calif. 95124  
408-371-6095

#### Peripherals

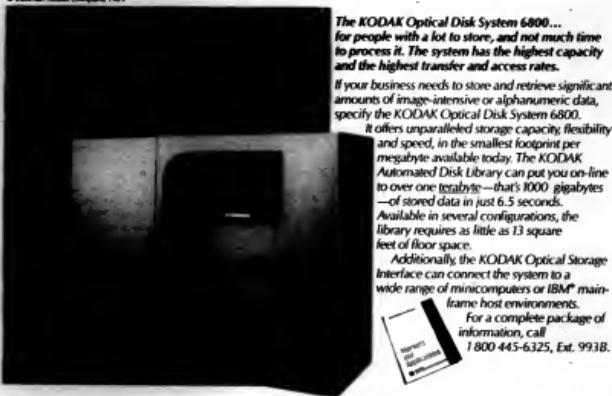
Radio Shack, a division of Tandy Corp., has introduced a wide-carriage dot matrix printer with 24-way graphics and print speeds of up to 270 characters per second.

Called the Tandy DMP 2102, it is said to emulate both the Tandy and IBM Proprietary XL34 printers, providing the user with resolution graphics of 360 by 180 dots/in. The printer also includes an IBM Alternate Graphics Mode for greater graphics-based software compatibility and can store up to 16,000 characters in memory, with an additional 32,000-character memory available for downloaded fonts.

The printer is \$999. An optional one-bin, cut-sheet feeder, the CSP 300, is available for \$299.95.

**Radio Shack**  
1700 One Tandy Center  
Fort Worth, Texas 76102  
817-878-4969

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# Now there are two ways to drive your network on a 386.



## Manual.

Novell went to a lot of effort to get NetWare™ to perform on a 386™ Microprocessor. But you'd have to go to considerably more effort to get it to perform like VINES®.

Unlike its competitors VINES is based on an international standard, UNIX®. So applications and communications programs are easy to integrate. That's why capabilities for E-mail, X.25, SNA and async are already included. And since VINES was built from the start to integrate anything from a PC cluster to an enterprise-wide network, it has one big advantage. A global naming system called StreetTalk™.

Which is nothing new to the VINES users who've been enjoying proven 386 performance for over a year. But to those who are still waiting for NetWare to catch up, remember, it's never too late to shift gears.



## Automatic.

**BANDAI** Networks for those who think big.

Banyan Systems, 115 Pinckney Road, Westboro, MA 01581 1-800-825-2404

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# NETWORKING

DATA  
STREAM

Patricia Keefe

## 3+Open: Take it or leave it

  
Will the real 3+Open please stand up? 3+Open, 3Com's OS/2 LAN Manager-based generation of its network operating system, seems to be acquiring a love-it or get-it-the-hell-away-from-it cult following.

Reports have been filtering through the grapevine that 3+Open is difficult to install and cumbersome. Some complaints, such as lack of robustness and speed, will shortly be remedied with the next release of the product. But at least one network analyst, also a disgruntled user, terms 3+Open "abyssal." The disappointed analyst sums up his feelings as follows: "They are a hardware and board company, and they know nothing about network software. They're not even be classed with Novell." Ouch.

The new math. At their recent annual meeting with financial analysts, 3Com executives detailed an evolved version of the firm's target customer: a large organization with multiple locations served by multiple vendors. The bummer is the long sales cycle, which of course will require direct sales intervention. No big surprises here.

But the good news, according to 3Com's Robert Forniochio, vice-president and general manager of the marketing and account management group, is that 3Com "is able to best IBM on its own turf" — in IBM accounts. He also notes that most large 3Com accounts place about \$200,000 in annual orders, which is far short of the vendor's stated goal of establishing

*Continued on page 44*

### Inside

- Zenith Electronics offers fiber-optic LANs. Page 42.
- Northern Telecom adds SNA to DPN-100. Page 42.
- New England Telephone announces fractional T1 service. Page 43.

## Prescribing real-time remedies

BY RICHARD PASTORE  
OF STAFF

**Malady:** Paperwork fever caused by third-party claims processing.

**Remedy:** Pharmacy network.

**Side effects:** Reduced losses from rejected claims, added customer value, expanded business volume.

**Dosage:** Link all stores by 1991.

This prescription is not new; Walgreen Co. became the first pharmacy to try it by installing a real-time pharmacy network in 1981. But two factors have added urgency to an industry-wide call for a cure. The first is the growth in third-party prescription coverage from health maintenance organizations (HMOs)

and company-administered plans. The second is a federal act mandating Medicare prescription coverage for outpatients beginning in 1991, which on its face is expected to deluge pharmacists with 700 million new third-party transactions in the first year.

Third-party transactions are expected to make up 70% of pharmacists' business by the end of the century. They now account for 35%.

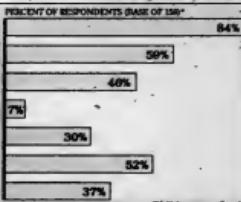
"Third-party prescription processing is so complicated — there are so many rules and exceptions with payment eligibility — that the chains can't depend on the pharmacists to keep everything up to date," said Bill Lockwood, publisher of *ComputerTalks* for the



### Data View

#### Critical concerns

Companies whose primary DP supplier is IBM were asked which software management features are critical; ease of use was first choice.



N.B.E. INTERNATIONAL DATA

1987 SURVEY

## Long-distance rates cut; telecom prices drop by 1%

BY ELISABETH HORWITT  
OF STAFF

Telecommunications prices fell a full 1% between the first and second quarters of this year, the biggest decrease since the first quarter of 1987, according to McGraw-Hill Information Services Co. The biggest factor behind this drop, the New York research firm said, is the recent spate of rate cuts by long-distance carriers.

In an increasingly competitive interexchange market, AT&T, MCI Communications Corp. and U.S. Sprint Communications Co. have used a combination

of special long-term discounts and tariff cuts to attract business away from one another and from "second-tier" carriers such as Cable & Wireless Communications, Inc., which have posed an increasingly serious threat to the "big three," industry sources said.

AT&T, for example, has announced several new customers for its Tariff 12 discount service, including The Prudential Insurance Co. of America, First Chicago Corp. and Combsen Engineering, Inc., and is rumored to have approximately 50 new sign-ups in the works. In addition, the carrier has announced a series of

major rate cuts to its Accutel family of high-speed digital services.

The most recent of these was AT&T's "Digital All-Service" price reduction, which took effect this month. The program, which is scheduled to take effect Aug. 25, extends AT&T's Multi-Service Voice Pricing Plan to offer discounts up to 50%.

The pricing plan allows customers to aggregate different types of Accutel services to take advantage of bulk discounts. This includes Accutel T45 and T1.5 services and Dataphone Digital Service (DDS) and will be expanded to include International Digital Services as well, AT&T said.

AT&T also announced its Digital Partnership Plan, which offer discounts of up to 24% for customers who sign up for be-

where staff maintains the system, Lockwood said.

Networks can eliminate druggists' maintenance burdens and thus boost productivity, making it possible for pharmacies to increase their volume of lucrative third-party business — a built-in way to pay for technology investment.

Virtually all of the major phar-

*Continued on page 43*

## Competitive cure

**R**even, an 1,880-store pharmacy, is about to join the elite corps of drugstore chains linked by real-time networks.

"We think that this system will really help the future of the pharmacy," said William Seltzer, senior vice-president of distribution and systems. "We're looking for a competitive edge."

Specifically, Seltzer is looking for a 50% boost in productivity over Revco's old system, which consisted of stand-alone NEC Corp. personal computers and a black-box system for third-party prescription coverage verification in which a customer's third-party plan identification number was entered and transmitted to an independent third-party clearinghouse along its service lines.

The new network, which is expected to be fully rolled out in 18 months, will link in-store IBM Personal Computer clones over an X.25 leased-line, packet-switched network. The PCs will be linked to a host Tandem VLX at Revco headquarters in Twinsburg, Ohio. The application software was developed in-house at Revco.

With the network, Revco's third-party verifications average 3.6 seconds, Seltzer said. Under the black-box system, verification required 45 to 60 seconds. Cost savings from reduced paperwork is an added bonus. "Everyone does a lot of third-party work today is plagued with rejected claims as well as slow receivables because of the time needed to correct the rejects," Seltzer said. "Rejects" include third-party claims that are ineligible for payment or are paid only in part. "Since the first store went on-line in May, there have been no rejects," he said.

Revco estimates its return on investment from the system will exceed 80%. "The payback is fairly early," Seltzer added, "less than three years."

RICHARD PASTORE

## Northern smooths SNA packet-switching

BY ELISABETH HORNWITZ  
CW STAFF

**NASHVILLE** — Northern Telecom, Inc. has enhanced its DPN-100 family of packet switches to handle IBM Systems Network Architecture (SNA) traffic without the need for special software or packet assembler/disassemblers (PADs), the vendor said.

Further enhancements scheduled for later this year will allow DPN-100s to exchange data transmissions with Integrated Services Digital Network (ISDN) systems, Northern added.

DPN-100 SNA/Synchronous Data Link Control Enhanced Transport Service, enhancements to Northern's switches, transparently allows SNA transmissions across a CCITT X.25 packet-switched network, according to Northern's Eastern Region sales director Jeff Powers. This allows users to set up SNA-to-X.25 links without installing special X.25 software such as IBM's Network Packet Switched Interface (NPSI) or special equipment such as PADs, he added.

## Zenith latest with fiber Ethernet

BY ELLIS BOOKER  
CW STAFF

**GLENVIEW, IL** — Zenith Electronics Corp. became the latest vendor of fiber-optic-based local-area networks last month, adding a fiber-optic Ethernet option to its Z-LAN product line.

Fiber Ethernet account for less than 1% of all Ethernet installations, according to Lee Doyle, manager of LAN research at International Data Corp. in Framingham, Mass. However, the technology — offered by several vendors in addition to Zenith — makes sense for some applications. Security-minded military and government users turn to fiber because, unlike copper cable, it does not emit electromagnetic radiation and is very difficult to tap.

More typically, Doyle said, users select fiber-based LANs because they are impervious to magnetic or radio-frequency interference from nearby electrical sources. The factory floor, a notoriously noisy electrical environment, was an early fan of this medium.

Zenith's Fiberstar Z-LAN10F, which operates at 10M bps/sec, with 100% collision detection, uses the IEEE 802.3 Ethernet standard. Fiberstar cards have a fiber-optic transceiver and interface on the adapter card itself rather than as a separate, external component.

The Fiberstar Z-LAN10F is compatible with Zenith's Z-LAN10B, Z-LAN500 and Z-LAN4000 products lines.

The cards currently support IBM Personal Computer, XT, AT and Personal System/2 Model 30 and compatible computers.

Zenith is taking orders for evaluation units of Fiberstar LAN cards this month; a commercial product is slated to be ready within 90 days.

A single Fiberstar LAN card costs \$895; the eight- and 14-port hub units are \$4,175 and \$5,975, respectively.

The enhanced switches can also pass network management data between network devices and IBM's host-based NetView, Powers said. The enhanced software is also said to support transparent X.25 links among multiple IBM hosts as well as peer-to-peer communications using IBM's PU2.1 protocol.

**Connect the domains**  
Another new feature is the DPN-100 switches' ability to interconnect hosts or terminal devices between different SNA domains, Powers said.

In a traditional SNA network, a terminal can address a host in another SNA do-

main only through a host that acts as a gateway, using IBM's SNA Interconnect protocol. DPN-100s equipped with the new software enhancement can handle cross-domain traffic across X.25 links, allowing terminals to address any host that "is aware of the terminal through its [system]," Powers said. This in turn eliminates the software costs and host overhead involved in traditional domain-to-domain addressing.

The enhancement is also said to support CCITT X.32, which allows workstations to send X.25 packet-switched data over a dial-up network, as opposed to the leased lines required by traditional X.25

networks, Powers said. This provides the error correction and other network management features associated with an X.25 network to sites that cannot cost-justify leased lines, he added.

In the fourth quarter, Northern Telecom plans to further enhance the DPN-100 with the ability to translate between X.25 and ISDN numbering schemes so that DPN-100 users can address computers and workstations on an ISDN network, Powers said. The same ability will be provided to users of public packet-switched network services that use the DPN line, he added.

BellSouth Corp., whose ISDN tariff is awaiting regulatory approval, is currently testing X.25-to-ISDN connections using DPN switches, Powers said.

# GOOD NEWS

INFO  
WORLD

PC WEEK

PC  
MAGAZINE

PC LABS Selects  
Multi-Tech  
MultiModem as  
Editor's Choice.

66

99

Multi-Tech  
MultiModem Wins  
Hands Down.

99

66

Poll of Corporate  
Satisfaction:  
MultiModem Ties for  
Top Overall Score.

99

*The results are in, and not one, but four of the industry's leading publications name Multi-Tech as the modem of choice.*

Magazine editors and corporate buyers alike put nearly every modem on the market under close, demanding scrutiny.

*"Solid buy" ... "Top performer" ... "Show of extras" ... "Well built" ... "The price is right" ... these are phrases used by reviewers to describe the Multi-Tech MultiModem.*

Editors at PC MAGAZINE in a review of 87 modems chose Multi-Tech for their Editor's Choice. Corporate buyers surveyed by PC WEEK gave Multi-Tech the highest scores for quality, overall performance and organized documentation. INFOWORLD, in detailed line impairment testing, named Multi-Tech the unquestionable "top performer." And results of the DATA COMMUNICATIONS DataPro User Review prompted editors to comment, "It's no wonder that Multi-Tech's performance and market share continue to grow."

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## Prescribing

CONTINUED FROM PAGE 41

many chains are computerized today, but only a handful of the top chains are networked in any way. Most of these link in-store Intel Corp. 80286- or 80386-based PCs to hosts via public dial-up lines, over which they transfer data on a nightly batch schedule to a corporate host.

In such setups, the PCs download drug and advertising information and drug industry updates and upload prescription sales records to the mainframe. Third-party verification is typically done by dial-up to clearinghouse agencies or plan administrators, a process that takes about a minute.

Real-time networks, as opposed to batch networks, are affordable by only the richest chains, and only a few have implemented them so far, according to Lockwood. These networks enable pharmacists to conduct on-line third-party verification in a time frame of just three to four seconds.

A real-time network allows the pharmacist to concentrate on his profession instead of housekeeping duties. He simply enters the patient's third-party plan number, and seconds later, his screen tells him if the patient is eligible, approves the transaction and indicates the level of reimbursement, according to William Self, senior vice-president of distribution and systems at Revco D.S. Inc.

Rite Aid Corp., one of the nation's five

largest chains in terms of sales, is pilot-testing a real-time dedicated network for third-party verification, said Senior Vice-President of MIS Joe Phillips.

The network software, HealthNet/2 from Shared Financial Systems, Inc., links in-store PCs to a fault-tolerant IBM System/38 at Rite Aid's headquarters. The System/38 holds a database containing protocols and requirements for third-party plans.

### Automatic verification

"When the pharmacist starts filling the prescription, the system automatically diales up HealthNet to verify the customer's eligibility to receive a particular drug," Phillips explained. "By the time the prescription is filled, we'll also know how

much the [third-party plan] is going to pay for it."

Such a system substantially reduces the number of rejected claims, Self said. Estimates that under a manual system, Revco loses \$7 million a year from third-party claims that are ineligible for payment or paid only in part.

Revco is now implementing a chain-wide homogeneous real-time network (see story page 41).

At Walgreens, a pioneer in pharmacy networks, real-time is an institution—and a selling point as well. The company boasts in advertisements that customers on the road can fill their prescriptions at whatever Walgreens store they happen to be near, thanks to the stores' on-line systems.

# MULTIPLIES

## Users of local fractional T1 take hope

BY ELISABETH HOWITT  
CW STAFF

BOSTON — New England Telephone & Telegraph Co. (NET) recently became the first former Bell operating company to announce a fractional T1 service, a promising sign for users who want to take advantage of the offering's economics on the local loop as well as over long-distance lines, analysts said.

AT&T, MCI Communications Corp. and U.S. Sprint Communications Co. announced fractional T1 services earlier this year. However, until fractional T1 becomes widely available on the local loop, customers will be forced to use the more costly Dataphone Digital Service or full T1 links to access the long-distance carriers' fractional T1 offerings.

AT&T sees NET's announcement as "an encouraging sign," a company spokesman said. However, he added, the carrier must demonstrate its equipment while it waits to hear NET's plans for conforming to AT&T's fractional T1 specifications. Such compliance is needed before the local and interexchange offerings can be interconnected, she explained.

NET's Superpath Fractional T1 Service is a digital point-to-point service that reportedly allows customers to purchase bundles of eight or 12 64K b/sec. channels. Other services were also announced: • Digipath Digital Services II, a private-line point-to-point or multipoint digital service that transmits synchronous data at speeds between 2.4K and 56K b/sec. • Secondary Channel Capability, a complement to the above offering, which is said to provide a separate facility for passing network management and diagnostic information between devices and network management systems that support the secondary channel. • Data Over Voice-PATH Service, a private-line service that reportedly allows users to send data and voice simultaneously over the same dial-up line at speeds up to 19.2K b/sec. Users must purchase a Universal Data/Voice Multiplexer from the local-exchange carrier.

The services are slated for Oct. 1 availability.

### Data Communications

“  
Report  
Card’s Out—  
Multi-Tech Scores  
3.56 Out of 4.0.  
”



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U.S. FAX (612) 765-9674  
International Tel: 4993572 MULTEC  
International FAX (612) 375-9480

## Keefe

CONTINUED FROM PAGE 41

\$1 million-a-year accounts. So it stands to reason that if 3Com is beating IBM in Blue accounts, it can't be for very big orders, or at least not very often.

Bridge over troubled waters. Beyond streamlining an admittedly un-focused — and I might add, not always well-integrated — product line and whipping the sales force into shape, 3Com needs to take a hard look at its Enterprise Systems Division. At the very least, the former Bridge Communications arm suffers a serious image problem. Industry sources and some users say Bridge is

keeping a very low profile competitively. There have been a few complaints of diminished service; certainly there has been high turnover. There is even a report, denied by a 3Com spokesman, that Bridge has become a dumping ground for executives who fall from favor. The less truth there is to these reports, the more important it becomes to initiate some damage control.

Meanwhile, back at the ranch . . . All is not rosy in the Utah valley. The presumed departure of Craig Burton, Novell's executive vice-president and technical strategist, has left the door open for a power struggle or two, I'm told. There's talk of infighting between Executive Vice-President Jim Bills, who heads

up services and sales, and Darrell Miller, executive vice-president of the Software Group. "It's paralyzed certain parts of the company," claimed a source close to the vendor. Meanwhile, Chief Executive Officer and President Raymond Novell, who recently turned 65, has no plans to step down. "You get the feeling he wants to turn Novell into a \$1 billion company," says a Novell watcher. Along the way, Novell is apparently slimming down. It reportedly divested itself of the last vestiges of the former Santa Clara Systems and incurred an estimated 150 layoffs as a result of its Excelan merger.

Kode is a *Computerworld* senior editor, networking.

## BIT BLAST

# Metro-area net vendors air first users

Two teleport companies have announced the first users of their fiber-optic metropolitan-area networks. Metropolitan Fiber Systems, Inc. said First National Bank of Maryland has begun using its network. Also, T. Rowe Price has signed a contract for service. Teleport Communications-Boston said Fidelity Investments has initiated service on its Boston network. Fidelity subsidiary Fidelity Communications, Inc., and Merrill Lynch Telephone Technologies, Inc. jointly formed the teleport venture.

NEC America, Inc. has agreed to sell API/Netview, a communications software package from Systems Strategies, Inc., to allow its Xenix-based NCMS/PC 386 workstations to send alerts to Netview without going through IBM's Netview/PC.

Sotswitch, Inc. recently said it will incorporate into its Sotswitch API the X.400 Gateway Applications Program Interface (API) published by the X.400 API Association. This reportedly will enable programmatic access to the X.400 services provided by Sotswitch Central and X.400 Gateway products. Also, Sotswitch said interoperability testing is under way between its X.400 Gateway and Western Union Corp.'s X.400 service.

Omnitracs said to be the first two-way satellite communications system for land-based fleets, recently went on-line in Europe, connecting British Telecom with Postal Telephone and Telegraph authorities in eight countries. Developed by Qualcomm, Inc., Omnitrac's system uses Ku-band transponders on a satellite operated by Eutelsat and is being evaluated by several European firms.

Banyan Systems, Inc. and AT&T announced compatibility between Banyan's Virtual Networking Software, or Vines, network operating system and AT&T's Starlan 10 network hardware.

Boston Technology, Inc. (BTI), a developer of voice processing systems, has signed a pact with Ameritech to provide the first trial of voice message service from public telephones offered by a regional Bell holding company. BTI's Information Services Interface (ISI) will connect Ameritech's public telephones to BTI's Access voice processing system. The ISI device will be owned by Ameritech and reside in its central-office switching facility to monitor its public phone lines.

Telenet Communications Corp., is in Reston, Va., recently announced that its Telenet Japan, Inc. subsidiary has obtained a license from Japan's Ministry of the Post and Telecommunications to provide international data communications service between Japan, the U.S. and other foreign locations. Telenet Japan was previously restricted to domestic service.

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# MANAGER'S JOURNAL

## EXECUTIVE TRACK



Douglas B. Templeton has been named senior vice-president of corporate services at New York-based Group Health, Inc.

Templeton, 43, was formerly vice-president of corporate systems at Empire Blue Cross and Blue Shield. He graduated from Ursinus College with a bachelor's degree in economics and business administration and has an MBA from Rutgers University in corporate management. Templeton and his family live in Montvale, N.J.

Perpetual Savings Bank in Alexandria, Va., has appointed three vice-presidents in its corporate information services unit.

Ross E. Markey was promoted to senior vice-president of corporate information services. Formerly Perpetual's data center manager, he joined the bank in 1983 after operating a consulting agency.

Roger M. Dill was named vice-president and manager of telecommunications. He was formerly manager of communications systems at Texas American Services, Inc. and also held senior telecommunications positions at Champion Petroleum Co. and Exxon U.S.A.

M. Lee Dillon was named vice-president of office automation. She was previously senior vice-president and manager of corporate information systems at Sovran Financial Corp. Before joining Sovran, Dillon was an advisory systems engineer in IBM's Washington, D.C., office.

### Who's on the go?

Changing job? Promoting an assistant? Your peers want to know who's coming and going, and Computerworld wants to help by mentioning any IS job changes in Executive Track. When you have news about staff changes, be sure to drop a note and photo or have your public relations department write to Clinton Wilder, Senior Editor-Management, Computerworld, Box 9171, 375 Cochrane Road, Framingham, Mass. 01701-0171.

## Breaking out of the mold

Cincinnati Milacron's plunge into CIM services takes firm outside its normal style

BY RICHARD PASTORE  
CW STAFF

**M**ark Twain once said, "If our world comes to an end, I want to be in Cincinnati — because everything happens there 10 years later."

Twain was referring to Ohio's Queen City, but his quote can be applied to one of the city's largest corporations, Cincinnati Milacron, Inc. — historically conservative in its adoption of computer technology. But Milacron's new ambition to turn its internal MIS department into a profit center that offers computer services to outside clients should send Twain packing.

Last fall, the 105-year-old machine-tool manufacturer formed a new business unit called the Industrial Systems Group (ISG). This team of five separate divisions — MIS, electronic systems, industrial robots, advanced manufacturing systems and industrial software — will pool its individual products and services to offer them to Milacron's customers, aiming to achieve computer-integrated manufacturing (CIM). The operation is expected to be in full swing by 1990.

These are progressive plans from a company that has begun implementing its electronic mail system and has purchased half of its 800 personal computers within the last two years.

"We're a very conservative company," says MIS manager Mary Jo Barnes. "We like to use proven technology."



Milacron's Mary Jo Barnes faces the challenge of adapting the firm's IS

REED DARRAGH

Barnes, a 15-year veteran of the MIS group and its manager for 18 months, has had to contend with stringent cost controls during a recent Milacron business slump that has also plagued the rest of its industry.

The ISG is a key part of Milacron's strategy to diversify and boost its presence in manufacturing markets with which it is already familiar. Specifically, the ISG will accelerate the compa-

nny's penetration into the burgeoning CIM market, says ISG Group Vice-President David Entrekin.

"The development of a product is very intensive from a computer standpoint, and a lot of small and medium-size corporations don't have the necessary amount of computer horsepower to do it in a timely manner," Entrekin says. "We can take the big iron and re-

Continued on page 46

## It's 'Not right now, thanks' for Tesoro

BY CLINTON WILDER  
CW STAFF

**I**s deciding whether to sell information services what's good for the goose is not necessarily good for the gander. While firms such as Cincinnati Milacron have decided to take the plunge into the computer services marketplace, Tesoro Petroleum Corp. has elected to remain on the sidelines.

Within the past six months, San Antonio-based Tesoro, a billion-dollar oil company, strongly considered offering processing services to outside customers. As part of a larger corporate reorganization, it set up a new corporate structure, a separate subsidiary called Dicompco, to market those services. But preliminary market studies indicated the risk was greater than the reward, says Jack Watson, Tesoro's director of management systems.

"There did not appear to be a strong market for manufacturing services," Watson says. "We're positioned organizationally to take advantage of any demand, but we just didn't see it."

The decision to consider selling IS services came about because Tesoro had excess capacity on its IBM 3063 D mainframe, Watson says. The oil industry slump of the mid-1980s had forced a corporate downsizing, re-

ducing demand for CPU power and cutting Tesoro's centralized IS staff from a peak of 100 employees to 45 today. Corporate management suggested looking at ways to offset its mainframe data center expenses.

**More than you think**  
But the company realized that it takes much more than available CPU cycles to get into the IS services business. "There's a lot more expense and effort than many people realize in trying to turn an internal function around," Watson says. "We just felt it was too ambitious. We're not marketing people; we're in the business of managing an IS function for an oil company. There's an awful lot we don't know."

Dicompco is essentially a corporate shell today, ready to be used if Tesoro changes its mind about selling IS services. That day may come, Watson says, but not until Tesoro management sees that the potential additional revenue is worth the attendant challenges and risks.

"Our decision was to not aggressively pursue that business; we'd do it if someone knocked on our door," he says. "A lot of companies have done it — some have had success and some have not. I think you need to offer something unique that's really needed in the marketplace, not just general types of services."

## Buddy, buddy

**C**incinnati Milacron is striving to fashion a close partnership between its MIS department and its users. This relationship will serve as a blueprint for building MIS partnerships with users from outside companies, according to MIS as part of the Industrial Systems Group.

"Traditionally, corporate functions of all kinds, including MIS, are a necessary evil in the eyes of the divisional people; they have to deal with us," says MIS manager Mary Jo Burnes. "But we're trying to change that image so people want to deal with us and feel that we add a value to their operations."

The department has been operating under a chargeback system for three years. Burnes is faced for users the costs of their programmer support, system enhancements and processing time. "I'm showing the division managers where they're spending the money, and it gives them more of a sense of reality that they can relate to," Burnes says.

The MIS-end-user partnership is critical at all levels, Burnes says. "We encourage our project leaders to visit particularly to get out to the divisions — don't have them come to you, don't talk to them on the phone, but actually go out and sit with them and experience their problems so you can come up with the best solutions," she says.

Another strategy is promoting an active user role in projects, with MIS acting as consultant

rather than as sole planner, developer and implementer. "We want the user department to be the project leader, because it's really their project and it won't succeed unless they own it," Burnes says.

When a Milacron robotic equipment plant in Greenwood, S.C., requested a drafting system to replace its method of "working on the backs of envelopes," a user-led project team took charge. "My job made sure that they didn't go off in a direction that couldn't be supported by the system and helped them understand how to use that application, but all the decisions were made by the division," Burnes says.

The plant installed Cadcam, an IBM-based, two-dimensional drafting package, on IBM RTs that were networked to the Cincinnati mainframes. "When it was all finished, they had a tremendous sense of ownership and pride in what they had done," Burnes says.

The MIS staffers learn about their company's business in part by participating in a company-wide 15-week class called Product Awareness. The class is a few hours a week in company divisionalizing the product lines, how they run their operations and the problems they contend with. "Everybody's been through it has come back with a greater appreciation of the breadth of the company's product line and the kinds of services we offer," Burnes says.

RICHARD PASTORE

## Milacron

FROM PAGE 45

sources we've got here and apply them against the customer's problem."

Cincinnati Milacron's MIS department plans to progress from running customer applications to setting up computer systems in customers' shops to developing customer applications.

The biggest bats in Milacron's MIS lineup, in addition to its staff of 68, are an IBM 3084, 3083 and 4381, with a 3900 Model 2000 on the way. The firm also has a Digital Equipment Corp. VAX 8700 and numerous smaller VAxs. In all, Milacron yields 1500 bytes of storage.

The MIS forces are backed by a company with 6,000 employees worldwide. The Cincinnati complex is so large — 124 acres and 1.4 million sq. ft. of production space — that it boasts a fleet of golf carts for internal transportation, a dozen interdepartmental softball teams and an employees' lodge.

Potential services that MIS will offer in conjunction with other ISG members include network management and remote diagnostics capability.

A Milacron field-service agent at a client site that is hav-



Milacron's Burnes believes her firm can sell CRM services

ing a machine problem will be able to dial into Milacron's network and run an expert system that will help him do remote diagnostics, according to Burnes. She said she is also talking with U.S. Sprint Communications Co. and MCI Communications Corp. to find a way for Milacron to receive and analyze diagnostic data service to customers.

Enrekin's aggressive goal for MIS calls for 30% to 40% of its business to come from outside the firm by 1992. It is a very tall order for an MIS operation that, according to Burnes, now

## Cost of EIS a big deal for most firms

BY ALAN J. RYAN  
CHIEF STAFF

ATHENS, Ga. — The cost of developing an executive information system (EIS) averages \$365,000, and an additional \$208,000 annually might be needed to operate it, making the executive tool an expensive proposition for all but large firms with hefty financial resources.

That is the conclusion of a new study conducted by the Department of Management at the University of Georgia's College of Business Administration. The study identified 50 users of EISs and asked them on current EIS practices.

Of the 112 companies involved in the study, the average total corporate assets were \$5.37 billion; three firms reported total assets of less than \$1 billion.

While most firms that had an EIS said they do not measure the hard dollar benefits of their EIS, they do consider the costs that are involved. Of the 33 companies that listed annual EIS development costs, the figures averaged \$100,000 for software, \$129,000 in hardware costs, \$90,000 for personnel and \$18,000 for training.

In the category of operating costs, the average annual numbers were \$117,000 for personnel, \$46,000 for software, \$29,000 for hardware and

\$16,000 for training.

However, it is no surprise that the main reasons why companies brought in an EIS were because of an increasingly competitive external environment and the need for timely internal information. The study also found that respondents rated the need for more accurate information as the least critical internal pressure, which may indicate that users of EISs already consider the information they receive to be accurate. The average age of the EIS in the study was two years.

Ninety percent of the companies that have an EIS said they have an executive sponsor to oversee the details of the EIS development process.

### Framework

The study also found that all the firms in the survey have EIS builder/support teams; the average team size consisted of four people. The team was often composed of end-user support personnel, systems analysts, programmers and executive staff support personnel. Only seven firms used vendor personnel when developing their EIS, the study found. The ability to work well with executives was found to be the most necessary skill for a development team member.

Development teams produce initial versions of an EIS quickly, the study found. Forty-six of the 50 firms said the initial version

was developed in less than one year; the average time wound up being just 4.9 months.

Forty firms, or 80%, use a mainframe computer for the EIS. Of those, 18 companies said they employ a shared main-

frame.

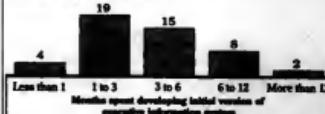
Of those polled, one-third said that their executives use the EIS away from the office, but two-thirds did not. User training is an important aspect for any EIS, and most companies said

of users on the EIS was 7.8, but that number increased rapidly, as did the number of screens available, according to the study. And those polled, one-third said that their executives use the EIS away from the office, but two-thirds did not. User training is an important aspect for any EIS, and most companies said

### What does it take to build an EIS?

Users say it takes one to six months, in general, and a mix of good business and people skills.

NUMBER OF RESPONDENTS (BASE OF 40)



Most important skills for EIS development team, rated by respondents

1. Ability to work well with executives
2. Knowledge of the business
3. Interpersonal skills
4. Technical skills
5. Ability to organize data

SOURCE: THE UNIVERSITY OF GEORGIA DEPARTMENT OF MANAGEMENT

CHART: CLINTON REED

frame, 17 firms use a personal computer network connected to the mainframe, and five companies used a dedicated miniframe. Eight respondents said they use a PC network with a file server for their hardware.

Initially, the average number

they used multiple interfaces. Most prevalent were keyboards, followed by a mouse and a touch screen. Most of the EISs in the study have graphical and textual formats, and another 83% employ color displays.

Because the EIS often pro-

vides sensitive information, more than two-thirds of the firms said they employ user identification and password security, and some use a combination of user ID, password and terminal ID.

Of the information found on the EISs in the study, there were several external data sources that they could access. The sources primarily include news services (56% of the firms), stock markets (46%) and trade/industry data (34%). The corporate database is the most common source of internal data at 82%. Other internal data sources include the functional areas of the firm (62%), documents (38%) and other workers (34%).

The study showed that to be effective in supporting the executives it is designed to support, the EIS must often provide information in a variety of ways, including strategic business unit (84%), functional area (66%), key performance indicator (71%), product (67%) and location (53%).

Of the 50 firms that did have an EIS, 12 said they developed their EIS using custom-built, in-house software. Another 12 firms used vendor-supplied software, and 26 firms used a combination of both. File Executive Software in Boston and Comshare, Inc. in Ann Arbor, Mich., were the most frequently cited vendors among the companies that used external vendor sources.



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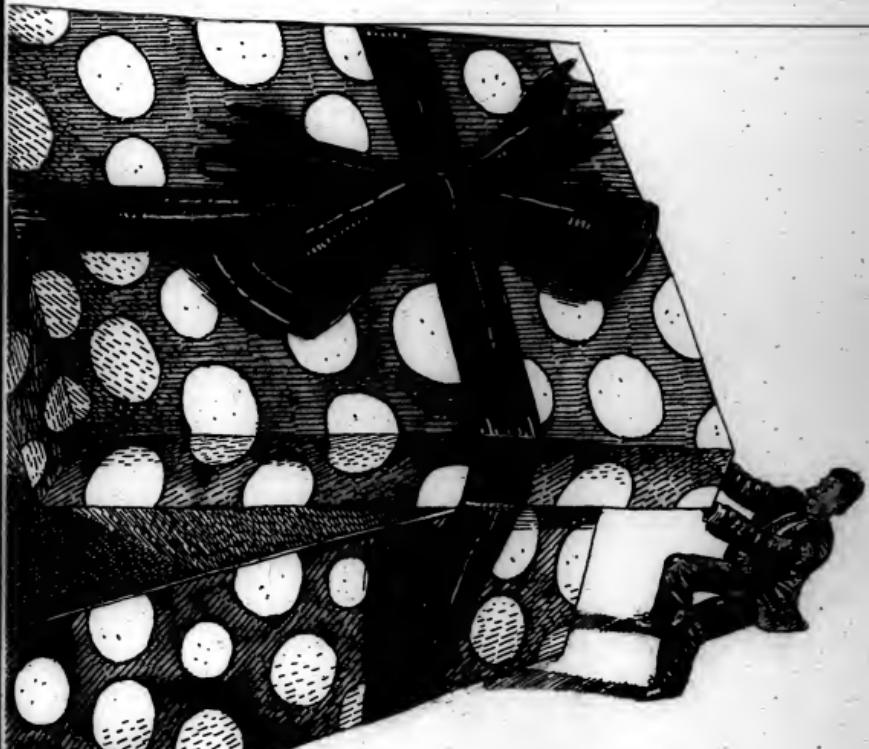
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## CALENDAR

"Information Technology Driving the New Business Reality" will be the theme of the Society for Information Management (SIM) 1989 annual conference slated for Sept. 24-28 in Atlanta.

The conference will feature leaders from business and academia presenting sessions on issues facing the computer industry. Many of the presentations will focus on Europe 1992 and how companies can use information technology to establish a competitive advantage and integrate worldwide operations, the organizers said.

Confirmed speakers include former U.S. Secretary of State Henry Kissinger, Bell-south Chairman John Clendenin, Lockheed Aeronautical Systems Co. President Ken Cannistraro, retired Citicorp Chairman Walter Wriston and Ralph Berenbaum of IBM United Kingdom Ltd.

At the conference, SIM will announce the winners of the 1989 Partners in Leadership and International Papers Award competitions, and the recipients will give presentations on their accomplishments.

For course listings and registration material, contact SIM International Headquarters, Suite 600, 111 E. Wacker Drive, Chicago, Ill. 60601.

# IT'S NOT CLEAR WHO MAKES THE SECOND-BEST CHANNEL MANAGEMENT SYSTEM.

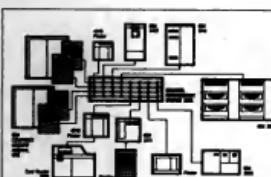
Feature	Dynatech 3900	DataSwitch 1200	IBM 3814
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8 x 16 matrix on one 2-foot floor tile	YES	NO	NO
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PC-based control system	YES <small>(standard)</small>	YES <small>(optional)</small>	NO

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JULY 30-AUG 5

Financial Management for Data Processing Annual Conference, Philadelphia, July 31-Aug. 2 — Contact: Financial Management for Data Processing, P.O. Box 27343, San Francisco, Calif. 94127.

Systems Integration: Market Directions and Strategies, 1989-1993, New York, Aug. 1-3 — Contact: GPC Publications, 600 Community Drive, Melville, N.Y. 11748.

Telecommunications Conference: Urban Metropolitan Area Networks and Local-Area Networks, Washington, D.C., Aug. 3-5 — Contact: Telecommunications, Suite 100, 3335 Beverly Road, McLean, Va. 22101.

AUG 6-12

International DB2 User Group Conference, Chicago, Aug. 6-9 — Contact: EDUG, Suite 600, 111 E. Wacker

Drive, Chicago, Ill. 60601.

Executive Communications and Support, Milwaukee, Miss., Aug. 6-9 — Contact: The Institute of Management Sciences, 290 Wauconda St., P.O. Box 62963, 03905.

Urban and Regional Information Systems: Applications (URISA) Annual Conference, Boston, Aug. 6-10 — Contact: URISA, 319 C St. S.E., Washington, D.C. 20003.

Strategically Managing the Information Resources, Boston, Aug. 7-11 — Contact: The Deloitte Group Information Management Institute, Suite 105, 50 North Wacker, Chicago, Ill. 60606.

First International Congress of EDI Users, Vancouver, B.C., Canada, Aug. 9-11 — Contact: The Electronic Data Interchange Association, Suite 550, 2250 Reethers Lane, Alexander, Va. 23223.

Speechware Conference, Chicago, Aug. 9-11 — Contact: Speechware Computing Corp., 222 W. Adams St., Chicago, Ill. 60606.

Macworld Expo, Boston, Aug. 10-12 — Contact: Macworld Expo, Mac Hall Associates, P.O. Box 156, Westwood, Mass. 02295.

AUG 13-19

Software Futures Executive Forum, Boston, Aug. 14-15 — Contact: Digital Consulting, 6 Wacker Drive, Suite 1616, Boston, Mass. 02110.

Flexible Manufacturing Systems Conference, Boston, Aug. 14-17 — Contact: The Institute of Management Sciences, 290 Wauconda St., P.O. Box 62963, 03905.

Small Project Management Planning, Schenectady, New York, Aug. 14-17 — Contact: American Management Association, 125 W. 36th St., New York, N.Y. 10018.

CABD Production Management, Pittsburgh, Pa., Aug. 14-16 — Contact: Philip Morris, Department of Engineering Professional Development, University of Wisconsin-Madison, 4232 Lake St., Madison, Wis. 53706.

Digitized Image and Optical Disk Systems, Arlington, Va., Aug. 15 — Contact: Tracey Hobart, National Trade Association, 3135 Parc St., Alexandria, Va. 22314.

Introduction to Information Engineering, Washington, D.C., Aug. 15-17 — Contact: James Morris Associates, Suite 306, 1650 Connecticut Ave. NW, Suite 306, Washington, D.C. 20008.

Multi-Net Expo, '90, Houston, Aug. 17 — Contact: Extra Computer Center, Suite 112, 1221 Katy Freeway, Houston, Texas 77007.

AUG 20-26

Agricultural Computing Trends for the 1990s, Indianapolis, Indianapolis, Aug. 21-23 — Contact: Jim Brown, AGCO Executive Director, Box 125, Chrysco, Ill. 60938.

ICAI-89, American Association for Artificial Intelligence: International Joint Conference on Artificial Intelligence, Detroit, Aug. 23-25 — Contact: AAAI, 445 Burgess Drive, Menlo Park, Calif. 94025.

Tele-Capture Telecommunications: Cost-Effective Alternatives to the Keyboard, Cambridge, Mass., Aug. 23-25 — Contact: Gordon Adams, Institute for International Research, Information Technology Division, 331 Mass Ave., New York, N.Y. 10017.

Network and Network/PC Managing Large Networks Seminar, San Jose, Calif., Aug. 23-25 — Contact: Tele-Consulting Transfer Institute, 741 Tech St., San Jose, Calif. 95131-2394.

Improving Your Technical Consulting Skills, Boston, Aug. 23-25 — Contact: American Management Association, 125 W. 36th St., New York, N.Y. 10018.

Oracle, Sybase, Structured Languages of the High-End Industry, Santa Clara, Calif., Aug. 23-25 — Contact: Datacom, Computer Department, 1250 Park Drive, San Jose, Calif. 95131-2394.

Uniform Trade Show and Conference, Boston, Aug. 23-24 — Contact: Journals, Suite 201, 2901 Tenth Ave., New York, N.Y. 10036.

Network Information and Records Management Association Systems, Minneapolis, Aug. 27-30 — Contact: Journals, Network Administrators Office, 254 5th Ave., New York, N.Y. 10010.

# EXECUTIVE REPORT

NEW ORGANIZATIONAL MODELS

STRUCTURING  
OF IS

## Changing the fixtures in the house that IS built

BY MICHAEL SULLIVAN-TRAINER

**W**hen H. Edward Nyce, executive vice-president of IS at Manufacturers Hanover Corp. in New York, talks about how technology decisions are now made at his firm, the picture that he draws is one that seems more in keeping with small-town democracy than with big business.

"We make our decisions by consensus," Nyce says, explaining that technology leaders within each business unit vote on new initiatives that must be weighed against corporate guidelines.

"We try not to impose policies that are going to inhibit the business. On the other hand, we need to make sure there is cohesiveness," he explains. "It's a matter of not encouraging too much risk, but not discouraging innovation."

This system of voting by appointed representatives of business division interests is a far cry from the structural isolation of the firm's old data processing operations division. While there used to be some gestures in the direction of business involvement, Nyce says, they were mostly symbolic. "There were steering committees involving the business units, but they never got back then," he recalls. "And they were supposed to meet once a month. But they were lucky if they met once a quarter."

The change, according to Nyce, grew out of a corporate decision to divide the bank into five self-managing units as well as a desire to make IS more responsive to user needs.

What is happening at Manufacturers Hanover is happening in various degrees and other forms at many U.S. companies. All across the country, IS departments are taking measure of the changes facing the businesses they serve and testing new organizational structures that might better support those businesses. "Everyone is experimenting



Courtesy of MHC

**Manufacturers Hanover's** a Nyce balanced risk and innovation

with new models for information systems," says Charles Palen, a senior consultant at O. D. Resources, Inc. in Atlanta, which helps companies deal with organizational change.

The first organizational issue IS managers confront when they open up the possibility of structural change is a familiar one — centralization vs. decentralization. While there is nothing new about this set of decisions, there are some new models emerging in terms of the ways that organizations are substituting compromise for either/or answers.

The habit, at least until recently, has been for organizations to swing back and forth between the two extremes. This is something that has seemed to

happen about every five to eight years, says Stanley Davis, author of *Future Perfect*, a book on the business environment of the future. The reason for these cyclical swings, he says, is that "companies need the benefits of opposite forms — the control of the centralized approach and the focus and flexibility of the decentralized approach." Unable to resolve the apparent contradiction between the two approaches, companies have frequently contended themselves with acknowledging what seems like a steady course by driving first in one direction and then another.

Now, however, some IS professionals are using technology as the glue for new organizational structures that combine cen-

tralization and decentralization.

The way this happens is that a centralized IS utility and a decentralized support organization are created as parallel structures, unit together through technology. The utility houses major systems that require tight technical control. IS support of application development and business computing takes place under the control of business units, with coordination from an executive-level IS function.

IS structures do not, of course, develop in a vacuum. The shape of an IS organization both influences and must be influenced by the firm in which it resides. Therefore, although there are certain broad trends that serve as the basis for the structural design of many IS organizations, the actual working models tend to blend these common elements into patterns that are uniquely suited to the business objectives of their companies. Some examples of IS organizational models that reflect prominent business missions include the following:

• **The Service Model.** This model emphasizes efficiency in distributing technical resources. Marked by formal policies governing interaction between users and IS, this model ensures that resources are being applied where they are needed most. Companies coming up to speed in computer technology are usually attracted to this style.

• **The Partnership Model.** Close alignment with the business and increasing user capabilities are the hallmarks of this structure. One element that clearly differentiates this model from the Service Model is that IS functional lines are broken down as the technologists become business professionals.

• **The Vendor Model.** This structure treats IS as an independent provider of services, which operates as a business and markets itself to its customer base. In some cases, IS may actually be an independent profit center, selling its services and/or systems products to both internal and external customers. In other instances, the customers

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## Changing fixtures

CONTINUED FROM PAGE S1

are all internal and the IS unit remains an internal function. Companies concerned about the value of business units and IS services are attracted to the cost accountability features of this model.

• **The Expansion Model.** While also focusing on efficiency, this IS model is chiefly distinguished by its emphasis on support for a broadening agenda of IS services to new and frequently distant locations and subsidiaries. This is a structure for IS departments in organizations with a growth thrust and, often, a multinational presence. For that reason, a flexible architecture that supports common systems is required, as well as the ability to allow both local and headquarters access.

• **The Strategic Advantage Model.** In this model, IS identifies with the business to such an extent that competitive products are developed jointly and the technology is seen as a distributed resource.

Although IS managers tend to focus on a single model to meet their most pressing business demands, over time they may implement pieces of two or more models in one IS organization. As the business climate changes, the truly effective IS models change with it.

### SERVICE MODEL

Blue Cross and Blue Shield of Connecticut, in Hartford, is a good example of the Service Model in action.

Martin Hayman, who just left his post as vice-president of IS with the company to join Goettner International in Hartford, made several procedural changes last year to redefine the basic job of the IS professional and improve the effectiveness of

systems by improving the processes of development and maintenance.

A major goal was to tame the flood of frequently overlapping applications resulting from the IS model. "Two years ago, we had over 600 documented requests for changes to our systems originating in different corners of the company. None of the client [user] community was talking to each other," Hayman says. In an effort to create order from this chaos, a business systems development group was created, consisting of 10 IS professionals. "These people are not programmers or analysts," he explains, "but people who coordinate and negotiate agreements with the clients on the best way to handle the requests."

The reorganization consolidated the user requests into 30 major offices. IS resources are now allocated based on these programs. But more than that, the move positioned IS as the forum for communication about system requirements among various parts of the business community.

"By sticking to our guns and saying we will only work through this new group, we got clients involved in the concept definition, and we're providing the environment for clients to talk to each other about their common business needs," Hayman says.

The group also interacts with the company's management level through a strategic planning team made up of five functional vice presidents who monitor resource allocations and develop a quarterly schedule of priorities.

According to Hayman, the new process is helping IS demonstrate to management that it can orchestrate and expedite systems usage throughout the organization and that will, in turn, help to define the IS role and responsibilities with the business units.

While formal procedures were needed to justify service delivery at Blue Cross, allowing the company to break free of traditional separatist structures and demonstrate that they need less, rather than more, structure. In some instances, that means turning to a more fluid and permeable arrangement.

### PARTNERSHIP MODEL

In companies that emphasize partnership, lines blur between IS and business. Barriers of distance and specialization give way to close collaboration. "In many companies, IS is no longer being singled out as a unit," says IS consultant L. Paul Oullette in Bedford, N.H. "It's being blended in as part of the company."

Miles, Inc., an Elkhart, Ind.-based health care company, is moving strongly in this direction.

Thirty key professionals have received training in business, interpersonal and consulting skills. John Tremeze, vice-president of IS, is aligning IS with the company's research and development and sales and marketing organizations by dedicating support to those departments. A third segment of IS acts as a utility.

As a result of the training program, Tremeze sees his staff dedicated more to the use of technology rather than just shepherding them through the basics of using it.

Also, Tremeze has opened the door, allowing users to acquire technical expertise or software from outside the company. "In the old days we'd protect our turf and not let them use somebody else's help," he says.

One example of the extent to which

these initiatives have produced closer ties between IS and business units is the group's participation in an M&A.

"For the first time in a year ago, we were invited to come in during a merger and look at the other company's IS operation," Tremeze says. "It was a recognition that we don't just talk about computers anymore, but that we can talk about business strategies." Business savvy is filtered back to the more technical areas, he says, through migration of talent between the IS group.

### VENDOR MODEL

IS departments moving in the direction of a Vendor Model require the same sort of complex skill set being developed at Miles, plus well-developed marketing know-how. The firms in which such models evolve are often concerned with the cost of IS and how to reduce it. Rather than seek indirect bottom-line savings, they choose the direct route of making IS responsible for revenue generation.

The decision to remodel the IS organization at Weyerhaeuser Co. into a vendor organization grew out of a reexamination of the firm's entire wood-products business. Weyerhaeuser executives wanted all aspects of the corporation to show strong revenues, and they were interested in quantifying how much IS investment was required. The independent unit was born when the corporation tried to determine whether it would be more cost-effective to contract out IS support services than provide it internally.

When asked the question of which would be better, it seemed reasonable to set ourselves up as an independent vendor, selling to the parent company. This enabled us to price our products and benchmark our services against our competitors," says Susan Mersereau, vice-president and general manager of Weyerhaeuser Information Systems.

Weyerhaeuser — which sells 85% of

*Continued on page 56*



Martin Hayman



John Tremeze

## Staying in step with the company

BY DAVID GABEL

**I**t's a little like trying to play Simon Says with a blindfold on. You know that you are supposed to be doing something, but it's not always clear what. Most IS managers today have a sense that their company is changing and their departments need to have a change. What is less evident is how fast to move and in what direction.

Timing is everything. Although "slow to change" ranks high on the list of IS criticisms, changing too quickly or on the basis of too little information can make the IS organization evolve into something that is not appropriate for the company as a whole. The tough part is matching your steps to the corporate situation.

"When the direction is very clear from the top," says Paul Berger, a Lawrenceville, N.J.-based consultant specializing in IS management, "then the pace of change in IS can be very rapid. On the other hand, if the direction isn't so clear, then moving in the wrong direction can leave the IS organization out in left field."

How can an IS executive for the pace and the path that are right for its organization? It may take some digging, according to Berger, especially if you are not part of the management team. If you are not in the inner circle, he says, "You have to be sharp enough to find out what is really going on." Berger suggests several ways that an IS professional can gather intelligence on corporate direction.

The first and best choice, of course, is to become one of the decision makers. If that is not in the cards, he says, at least try to get on the invitation list for policy meetings or on distribution lists for meeting minutes. It is also a good idea to develop contacts among line department heads, who are the source of most of the information. Then there is the informal information network in any organization that a manager can cultivate for his own use. Gathering information when one is left out of the formal decision-making loop is usually a matter of developing all of these sources and adding one's own powers of deduction in analyzing the information thus obtained.

Of course, sometimes even a firm's top management does not know what is going on, so being part of the decision team does not always help. "Take the situation with divestitures," Berger says. "The decision may have been made, but few people know about it, because of strategic reasons." When that is the case, the IS director needs to make some intelligent guesses, based on the best judgment and research available.

One person who followed that course is Igloo Russell Hennault, director of IS for Houston-based Igloo Products Co., a plastic products whose most familiar product is cooler chests. In the mid-1980s, Igloo invested 10 cents in a large computer system that was supported by a central corporate data processing operation. In 1986, the conglomerate sold nine of the 10 units, including Igloo, and each divested division be-

came responsible for its own IS. Suddenly, Igloo was faced with the necessity of building its small DOS shop into something that could support new independence. Hennault, who came from corporate DP, joined the company with the breakup.

"It was tough to have a clear course," he says, explaining that top managers were too preoccupied with planning for and launching new products to pay much attention. "They didn't make it clear, however, that all current systems had to be maintained and that the company would soon be diversifying beyond its current base of seasonal products in order to achieve a more balanced revenue stream."

In the absence of clear mandates from the top, Hennault sought advice from consultants and turned his staff into researchers who extensively queried other IS organizations operating in similar business environments.

Hennault took the initiative to find out how he needed to change his organization; he also determined the pace of change needed, which is the best way to keep IS in line with corporate strategy.

Gabel is a free-lance writer based in Northport, N.Y.



Paul Berger

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## NEW ORGANIZATIONAL MODELS

### EXECUTIVE REPORT

its services to internal clients — then decided which services it could provide more cost-effectively to the parent company and which should be purchased from other vendors.

"It really allowed us to look at areas where we added value for the company," Mersereau says.

In order to make the plan work, however, she found she had to hire managers from the business side of the company to run product groups.

"We've had to infuse the organization with sales and marketing skills and get the managers to really operate their departments as a business," she says.



Weyerhaeuser's  
Mersereau

One way that the company has chosen to build marketing savvy, as well as bolster revenues, is the pursuit of external customers for its software and services. It currently sells manufacturing applications as well as recovery and systems integration services.

In addition to a computer and software group for application development, Weyerhaeuser IS has worldwide telecommunications and manufacturing groups that focus on business areas. Finance, planning, sales and marketing and administration components are also included in the structure. More changes are on the horizon. As

the parent company reexamines the amount it has diversified, IS will have to adjust its orientation. "Every time the organizational structure of the corporation changes, it impacts technology and vice versa. Weyerhaeuser IS is right in the middle trying to bridge the two," Mersereau says.

#### EXPANSION MODEL

While evaluating IS is frequently the impetus for adopting the vendor model, extending IS into new realms is the goal of the expansion model.

Finding the right structure to support diversified growth while maximizing efficiencies is no easy matter. Just ask Phil Friedman, director of technology at Philip Morris International. "We acquired Kraft

Foods, and we have General Foods in Europe. We're looking for synergy there between the companies," Friedman says. "At the same time, we're consolidating operations in the tobacco company."

As if all that is not complicated enough, in 1992, Philip Morris affiliates in Europe will merge with a similar system. What this means, he explains, is that, in addition to development resources to support the local affiliates, there will also be a need for common systems across regions.

Philip Morris is attacking the problem by simplifying the role of IS into two types — data workers and knowledge workers. Friedman explains the difference this way: The knowledge worker manipulates data on an intelligent workstation using sophisticated PC software; the data worker is concerned about maintaining consistent and reliable data and managing the architecture.

The company is recruiting knowledge workers out of the ranks of business professionals who have been exposed to IS in school and in various positions within the company. Data worker positions are being filled by advanced systems analysts and IS professionals.

"The knowledge worker will have a good IS background and a good understanding of the technical tool bag. The data worker will continue to be the problem solver and know the tools intuitively. There's enough work and challenges to keep both sides occupied to the year 2000," Friedman predicts.

Consultant Oullette sees many organizations adopting a similar structure. "The people in the line groups end up understanding the business as well as the technology," he says. "The technical guru will be in database administration and telecommunications."

#### STRATEGIC MODEL

At least for now, however, the development of competitive advantage systems is still an IS-intensive task. One firm where IS has organized around that mission is Manufacturers Hanover, where Nyce is readying for another organizational shift.

Nyce's odyssey of restructuring began in 1985, when he was faced with a corporate decision to decentralize management and divide the bank, then the fifth largest in the country, into five self-managed sectors.

With a mandate to give each sector "maximum control over all needed resources," Nyce struggled with the question of how to move IS closer to the business users while continuing corporate responsibility for competitive advantage.

The answer was to break up the bank's large operating divisions, which included 3,500 technical professionals, into units for each business sector. Each sector has a technology and business chief working closely together on IS resource management.

In addition, an IS utility was formed to manage the voice and data networks, bulk processing and corporate database.

To coordinate the new structure, a Strategic Technology and Research group was formed. Made up of the

*Continued on page 60*



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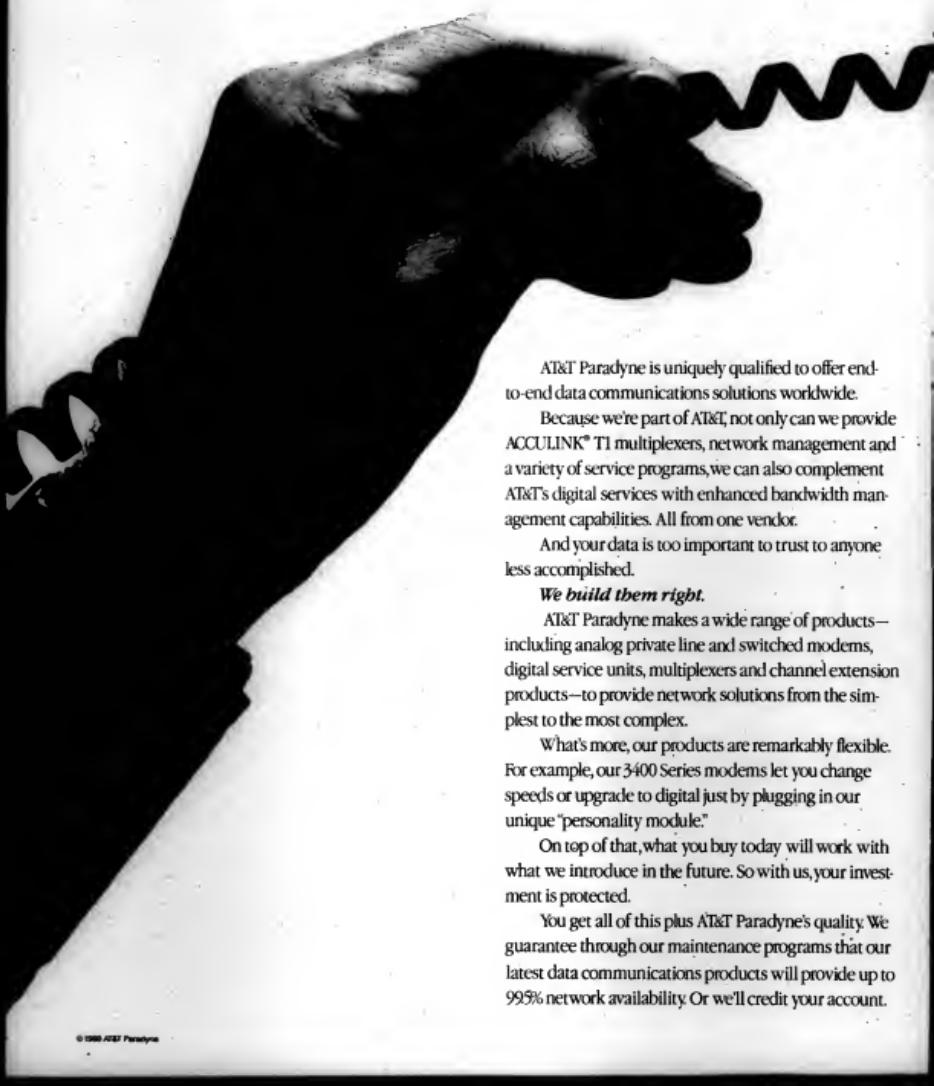
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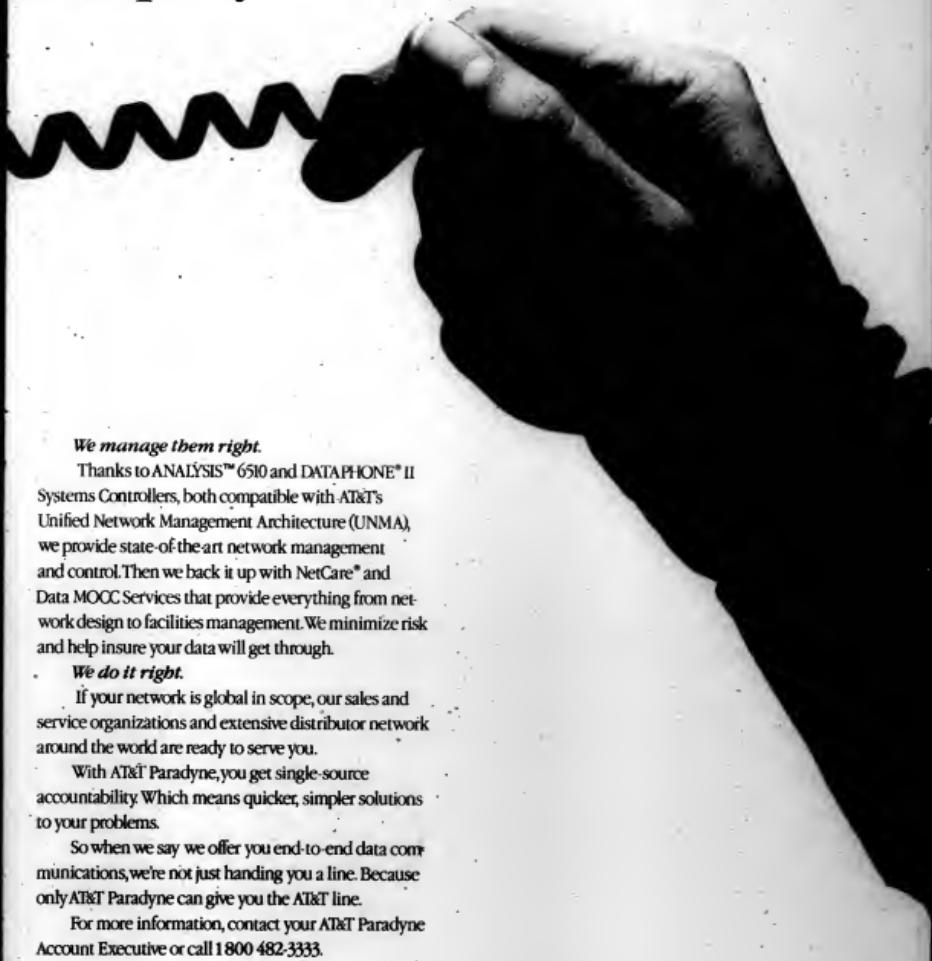
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## Approaching service in a businesslike manner

BY WILLIAM HARRIS and  
SUZANNE BEHNKE

The service ethic is back in business, reasserting itself as a driving and, in some instances, a reorganizing force. The revival is one that has profound implications for the information systems organization.

In and of itself, there is nothing terribly new about the idea of building reputation and market share based on reliability and responsiveness. What distinguishes this particular upsurge, however, is the developing recognition that service quality can be built only from the inside out and that IS can be the pivot of such efforts.

Clodagh Duff phrases the idea succinctly: "You can't expect your employees to give good external service if they don't get good internal service." Duff is operations manager at TMI North America, Inc., the U.S. branch of Time Management, Inc., the Danish consulting firm that helped Scandinavian Airlines System (SAS) implement its renowned employee-centered strategy for reviving the business through service excellence.

In one year, SAS went from a loss of \$17 million to a profit of \$54 million. Duff claims the key to that turnaround was a revamping of the organizational structure; SAS prioritized the needs and inter-

ests of employees who provide direct services to customers — flight attendants, ticket agents and the customer service staff.

Because technology in most organizations is now not only the major vehicle for delivering products and services but also the governing element in the work environment, Duff says there is a strong message for IS in what SAS did. Of course, SAS is a corporation, whereas IS is not.

As a department within a corporation, but even if it is not strictly speaking a business, there is no reason why IS cannot think and operate like one. No other function of the modern corporation affects as many people as directly as IS. Furthermore, the way that IS delivers its services to internal customers can influence the way external customers are served.

The message here is not that the IS department should necessarily be a separate entity, but that it does make sense for a chief information officer to say, "I've got to run the IS functions as if I were running a separate business with a product to sell."

This form of organization unites the external and internal markets of the firm in the minds and behavior of IS personnel. Every user then becomes a "customer." Some of these ideas are already at

work in the cash management division of a New York-based multinational financial institution. In addition to the regular IS department, which takes care of systems development, data center operations, network management, quality assurance, systems software and so on, the division also has a marketing staff, which plans promotional programs, and a sales staff, which concentrates on selling the division's information-based products to established and potential markets. Organized along product lines, the product-development function strives to meet customer needs. The product-development staff meets with external customers, such as chief financial officers and trade bankers, to learn what kinds of products they would find useful.

Although the focus of IS marketing efforts here is the external customer, in-company users and commercial accounts mingle as equals at the support level. The operations and technical services sector of DP maintains a Help desk, which is also used by the internal cash management users, to assist in customer account problems and other network difficulties.

As an IS department that effectively markets technology to internal customers and follows up with service and support improves the company image by avoiding conflicts between customers and poorly trained or unresponsive employees.

IS also advances in its own cause in the process. As an IS organization can do a great job and still be regarded as a disaster area. Proper targeting and packaging of services can make a big difference in the way that IS is perceived.

At one firm, which manufactures trade systems for the securities and exchange business, the IS department found an effective way to verify its worth and hone its service edge at the same time. In developing an IS plan, IS performed a Critical Success Factor (CSF) analysis. It interviewed top managers to see what kinds of management information they needed to measure their departments' performance. That input translated into specific systems development projects, which IS then embarked on as CSF measures. The plan gave the IS department both a vehicle to publicize its successes and a means of quantifiably demonstrating its contribution to the business.

Cultivating company employees as a market for technology can also help to clear the way for strategic IS initiatives, which might otherwise be derailed by re-

sistance or lack of understanding.

This benefit was seen in a Fortune 500 consumer products firm that successfully implemented an artificial intelligence system designed to expedite customer service. Although employees are often reluctant to transfer their knowledge to a computer for fear of becoming obsolete, expert systems were not viewed as a threat at this company because it has long been committed to a policy of company-wide personal computer use and has supported that policy through the extensive training of employees in PC use and the transfer of IS personnel into user organizations. The service staff soon understood AI's benefits and embraced the concept, which meant that better service could be offered to more customers with added personal dimension.

Still another major benefit of treating the IS department as an innovative, people-centered company with both external and internal constituencies is the motivational impact on IS employees. Organizing the department as a "company" acts as a tremendous stimulus to departmental morale and sense of mission.

As seen in the cash management division of the financial institution mentioned previously, the IS department is strongly identified with the company's business goals. For example, the firm's electronic funds transfer function is crucial to its survival. If the function is not up and running, funds cannot be transferred, the institution bank could stand to lose millions of dollars in penalties. This realization and dedication to service is ingrained in the employees, who see themselves at the lifeline of the business.

At SAS, company President Jan Carlson told everyone from management to baggage handlers that they were in the service business, not the transportation business; the test of the airline's effectiveness came down to "50,000 moments of truth each day," whenever employees came into contact with a customer.

For the IS department, the real task is to create the means and the climate for service by adding marketing, sales and support to its traditional project development function. The bottom line is credibility, which translates into effectiveness.

Harris and Behnke are chairman and president of Behnke Harris & Associates, Inc., a New York/Atlanta consulting firm that specializes in the integration of information technology with business strategic and operational requirements.

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## Changing fixtures

CONTINUED FROM PAGE 56

technology chiefs and Nyce, the group ensures that corporate standards are carried out and investigates emerging technologies.

This summer, further changes are planned to hone the focus on strategic efforts. The five units will be compressed into three by combining three wholesale banking functions into one unit.

Richard J. Mattei will become chief executive officer of the new combined unit, which encompasses the bank's profit-making IS services and will focus on creating cross-selling opportunities and efficiencies in cash management, funds transfer and trade and custody services. The IS functions that support these services will be under Mattei's wing.

It is clear that all of these organizations

are positioning themselves for the future by adopting new organizational structures. It is also clear to these information systems executives and to others who have experienced organizational change more than once in their careers that the organizational structure alone does not spell success.

Although implementing the wrong model for the organization — one that cannot be adopted because of cultural or structural limitations — is a sure path to disaster, executing the right one takes something more than just following a map of functional reports.

"I'm not sure there is an exact structure that you should use," says Nyce. "If you have the right roles and responsibilities and the right chemistry among the people, with the right vision, you can make midcourse corrections as they're necessary — and you will succeed."

# Strengthening the union

GE Canada opts for single system, closer ties to businesses

BY J. C. KIMBROUGH

Contrary to what you may have heard, hardware and software are not the key to a successful information system. What really matters is attitude.

"For things to happen," says Geoffrey Reigh, chief information officer at GE Canada in Toronto, "you need a prevailing environment in the organization that predisposes it to change and predisposes it to the notion that technology is important as an enabler for that change."

Things are definitely happening at GE Canada. The company is engaged in a major renovation of its IS technology with the goal of positioning the company for the new century. "We're committing about \$30 million over the next few years to the installation of a major integrated and real-time application system," Reigh says.

The system, however, is only part of a story that begins with a new vision of what technology can do for a company and changes in structural changes affecting both the business organization and the IS organization. In addition to revamping its systems, GE Canada is changing its operating culture to emphasize information sharing, fast-response capability and teamwork.

The saga began about two years ago, when GE Canada's top management brought in Andersen Consulting to review its information systems.

At the time, both the systems themselves and the IS staff supporting them were as diverse as the corporate structure. GE Canada is split into three main groups: consumer products, lighting and appliances; high-tech; and power systems and supplies. Below that level, GE Canada supports 17 businesses.

Steven Tower, a consultant at Andersen Consulting, describes the systems structure he found upon arrival as "something of an octopus."

There was no commonality, he says. Business units were using different types of hardware and different versions of software. He adds that the lack of coherence affected the employees' attitudes and acted as a stumbling block to teamwork.

Tower recommended that the 17 entities in GE Canada learn to use IS as a competitive weapon and work together as a family of businesses. To do that, GE needed a single hardware platform, a single application system and the ability to share resources. It also needed a unifying strategy supported by strong leadership.

Andersen Consulting brought together a group of about 25 people from the three major business units, including both business and IS representatives, and helped them put together a 40-page list of desired hardware and software features. IBM was chosen as the primary hardware supplier. There were two reasons for that

choice, Reigh says. One was IBM's corporate stability, and the other was the perception that "it is the organization that attracts the most application software development."

When it came to choosing an integrated software system, however, GE Canada also had to find one that would work with the Digital Equipment Corp. systems used in its design and manufacturing engineers. The company selected R-2 from the West German firm SAP.

In addition to compatibility with both

IBM and DEC, R-2 offered real-time updating and full integration among modules that include repetitive and custom manufacturing, order processing and distribution, marketing and sales support, purchasing, contract management, plant maintenance and financial systems. The system is also multilingual. It can accept and translate English, French, German and Italian.

The various GE Canada businesses can opt to use all the functions offered by the R-2 system, or they can choose just a few. They can also tailor specific applications to their particular needs without interfering with the integration process.

The new GE Canada information system is in the development stage. Some major implementations are expected by

the first quarter of 1990, and a prototype is under way at the GE-Fanuc group, which is a joint venture between GE and Japan-based Fanuc. The integrated system is expected to be fully operational in 1993.

Because of its size and diversity, the system will require strong central support. Some of that support will come from a central IS group. It was decided, however, that IS should remain mostly decentralized to provide local applications expertise and follow-through. Because standardization coding and data-handling procedures are crucial to a system that crosses many businesses, a multigroup standards committee was formed.

GE Canada has also set up a Project Council, which includes Reigh. Some major implementations are expected by

*Continued on page 65*



GE Canada's  
Reigh



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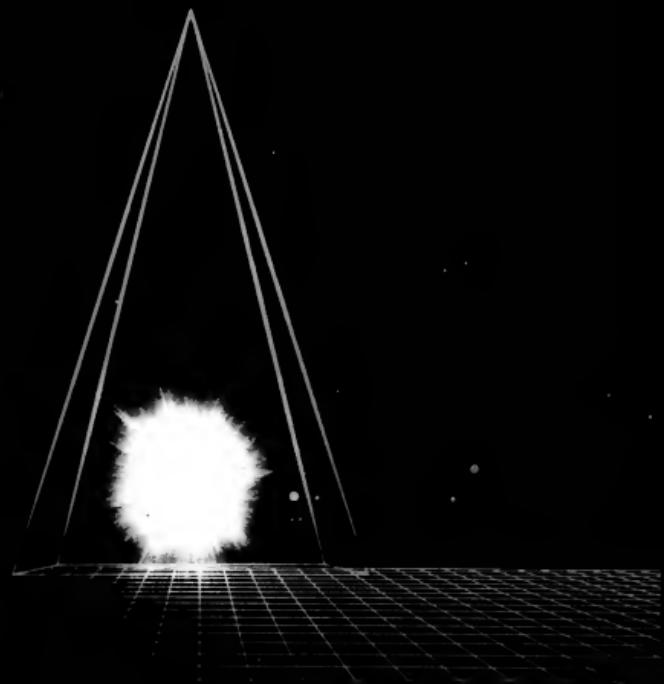
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## INTERVIEW

## In change, there is opportunity

*IS organizations are used to dealing with technological change. Ralph Loftin suggests businesses take advantage of their experience as change reaches throughout the company*

In these tumultuous times, there are opportunities for information systems organizations to support their companies beyond system development and operational support, according to Ralph Loftin. Businesses are going to need help figuring out how to cushion the shock of change and how to build resiliency into their organizational structures. IS could, with a little effort, stake claim to the role of guide.

Loftin, who has held executive IS positions at Blue Cross and Blue Shield of Massachusetts and General Electric's Information Services Division, is president of Ralph Loftin Associates, a Newton, Mass., consulting firm, and a partner in the consulting consortium, The Dexco Group. Loftin specializes in IS management, particularly as it relates to planning and organizational effectiveness. He recently spoke with Computerworld Features Editor Joanne Kelleher about how IS can serve as a force for organizational innovation.

**You have said that IS can play an important role in helping a business adapt to change. I wonder if you could talk about some specific ways an IS organization can do that.**

One way is that the IS organization can help the business adapt and more responsive is to become more adaptive and responsive itself in terms of its internal operations. This means becoming extremely flexible in terms of the ability to alter its own organization structures and operating on short notice to accommodate perceived changes in the business environment.

Beyond that, however, the IS organization really can become a primary instrument of change for the business. If the people in the IS organization, particularly the business analysts and others who come into contact with the business community, can be more open-minded and involved in change management, then they can function almost as internal organization development people for the business community.

**What would that entail?**  
Helping the business community

understand and deal with the resistance that change invariably provokes. Helping to formulate approaches and strategies that would ease the adjustment to new organization forms or new methods of operation.

**It sounds like you are talking about something that goes beyond dealing with changes in technology.**

That's right. It almost doesn't matter what kind of change is being perpetrated on an organization. It doesn't matter whether the change is a change in the use of technology, a change in organization structure, or a change in work roles. Whatever the change is, the responses are really the same.

**If people can understand how to detect change that is driven by technology, they are capable of dealing with change that may be driven by other kinds of forces as well.**

**Why would IS be a logical group for helping to deal with that?**

It is primarily technology changes that would bring the IS organization into play with the business unit, but often the need for technological changes is stimulated by changes in the business environment. A system project may carry with it all kinds of implications for organization structure and job roles and this sort of that.

**How well-equipped would you say the average IS department is at the moment to teach others about organizational management and change?**

Most are terrible at it. I'd say they'd rank somewhere between zero and minus 12 right now. I think traditionally the IS people have chosen not to deal with issues like job function and adjustment to changes in relative power within the user organization and changes in structure. This may be because they feel they lack the skills, but probably it is because they haven't really been sensitized to these kinds of issues.

**So is the idea that the IS organization should work on its own orientation and**

**then carry what it learns out into the business?**

I am suggesting that the IS manager look within his own organization and explore the use of some of the common development methods, such as early feedback techniques, problem-solving groups, empowering lower level employees, really rethinking the whole notion of power within the IS organization. That whole area, I think, is a very profitable one for the IS executive to look at, even if he never goes into the business community with it at all. And I also think it is essential that the IS executive

point to situations in other businesses that show the advantage of doing things differently. It is very difficult to ask the business community to do something different and to take it on faith that it is going to be better.

**Do you feel it is best to test this kind of approach on a limited basis, maybe with one business unit?**

Absolutely. Some of the most successful examples of IS involvement in business change have combined a small business unit and an element of the IS organization in a way that can be seen as a kind of microcosm of the organization at large.

**Can you think of any instances in which structures and methods developed in that way have actually filtered out further in the business organization?**

Yes. I can think of two, actually. In one case, where the company is highly divisionalized, one division initiated some partnership arrangements with regard to executive education and identification, and the successes there have carried a kind of pull-through effect into other divisions. When the first division did was to go through an extensive campaign with the business unit manager and his subordinates to acquaint them with the potential for information technology in this business. This business is not one you would think of as having a lot of potential for exploiting IT technology, but they found some things that really produced some dramatic gains in profitability.

**Did what happened there go beyond technology implementation? Did IS also participate in some sort of organizational restructure?**

Yes. As a matter of fact, some of the opportunities that were identified had nothing to do with information technology. They had to do with rearranging the



practice some of that within the IS organization before trying to practice it on the business.

**What kind of reception could your average IS manager expect from business managers when he makes suggestions that fall outside his accepted technical specialties? Is this a risky proposition?**

The extent of the risk is a function of the relationship that exists between the IS manager and the business community. The individual relationships that the IS manager has with business managers are going to determine the reception that gets.

Beyond that, I think the approach that the IS manager takes in trying to introduce this idea to the business community is critical. You can't ask people to take it on faith. You have to

distribution organization — closing some warehouses, rearranging the distribution of products among distribution points and so forth — and came out of joint sessions that were initiated by the IS community.

**What was the second example you were thinking off?**

In that company, the style of management practiced by the IS organization has been adopted by some of the business units, largely through the leadership of the senior IS executive.

**That raises an interesting point. Isn't the usual goal for IS to have its management style or structure match the organization, instead of the other way around?**

## Union

CONTINUED FROM PAGE 61

general managers of the businesses and the corporation's chief financial officer, to make policy on issues that cannot be ironed out at the standards-committee level.

Although the actual structure of IS is expected to change little, the emphasis is on developing common skills. The goal is to allow IS staffers to go comfortably from one GE business to another. GE uses vendor training in conjunction with IBM and SAP but relies heavily on its own resources and in-house training.

One of the ways that this development of common skills is accomplished is through the use of implementation teams to set up projects to educate those involved. These teams, which are made up of both IS staffers and users, install local application modules; the plan is to have part of each team stay on to maintain the applications, while the other members move on to another project.

"We set up implementation teams to break down the barriers in different businesses," Tower says. "People are crossing boundaries between businesses to help each other."

Right now, the implementation teams are working in only a few of the 17 GE Canada businesses. As they build up expertise, they will move out to other companies and pass on their experience to new teams members.

The presence of business users on the implementation teams, as well as in all the other major planning and governance bodies, is indicative of the kind of cohesion that GE Canada is seeking among its business and between the business function and the IS function.

As an illustration of how business employees are helping to advance the process of IS integration, Ralph likes to tell of a GE group that wanted to buy some new computer-aided drafting and manufacturing equipment so it could use draftsmen to do some of the work engineers had done in the past. The first step, Ralph says, was not buying the equipment and training the draftsmen — it was a matter of deciding on a way to do it better in the future.

The group had to negotiate with union officials to get lay-off exclusions for the low-seniority draftsmen. They also had to break down the barriers that existed between engineers and draftsmen and rewrite job descriptions. Only when all of these nontechnical issues had been resolved, Ralph says, was it reasonable to buy and install equipment. \*

The good ones usually tend to mirror the business organization. The IS organization ought to be aligned with the business that way, if not in terms of the payroll relationships within IS, at least in the way it applies to the business. That applies not only to job titles and functional responsibilities but also to management style.

**But it seemed, from the example you cited, that you might feel muddying the business organization in terms of structure and style isn't always a good idea. Is that true?**

It is a good idea, but it can be carried too far. In some ways, I think IS has to constantly test the company in terms of the culture. For example, in an old-line

manufacturing organization, it may very well be that the business requires more innovation or more risk-taking than the culture would appear to permit.

So it may be necessary that the IS organization test that in some ways by embarking on some experiments, by encouraging the business to do some things in innovative and creative ways that traditionalists wouldn't buy into. And maybe, by the same token, in a real go-go kind of environment, the IS organization ought to try to be a little more restrained and thoughtful or purposeful in the way things get done. That kind of moderating can be very effective.

So, IS can't just take a yes-man kind of a role. It has to be concerned about the needs of the business, as well as maintaining

consistency with the culture. And where the needs of the business require something different from what exists, the IS manager and staff should test that and confront the business with the need to be doing something different. It is, by the way, possible to do that in nonhostile and nonaccusing kinds of ways.

**But what if the business managers don't think there is a problem?** It is essentially impossible to do this with any effect in the absence of a perceived problem. There has to be some perceived problem that everyone can recognize as something for which the conventional methods will not work. So the IS executive has to look for opportunities and be a little bit opportunistic in his approach. \*

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## When a nontechie takes over IS

*The fear of technical disaster is overcome by a list of perceived benefits*

BY ALAN RADDING

**C**onsider the following scenario. While fictional, it could happen to you: Duane Johnson worried about taking over as head of information systems. Two years ago, as executive vice-president of marketing, he had lashed out at the company's IS staff during a senior executive committee meeting. They were taking months to make a seemingly simple change to the way statements were calculated and printed for a new preferred-customer product, and they were charging him a fortune. A competitor was about to beat them to market with a similar product.

In frustration, Johnson showed some printouts of exactly what he wanted, and he and one of his technically oriented staffers had done on a personal computer spreadsheet. "If a couple of nontechies with a PC can do this in a few days, why can't IS?" he queried.

The head of finance, to whom the IS manager reported, snapped back that he had checked the IS billing, and Johnson was not being paged. That is what it cost. He would show the printouts to Davis in IS, but Johnson should remember that the mainframe is not a PC.

Now the company was going through a major restructuring, and the chief executive officer had tapped Johnson for an upgraded senior executive-level IS position in the department.

Radding is a Newton, Mass.-based author specializing in business and technology.

Johnson and other users felt good about the change, but he kept thinking about the finance chief's comment that the mainframe is not a PC. What if he screws up? The entire organization rides on that mainframe.

These days, more and more nontechnical managers are filling top IS positions, creating a situation that raises a lot of questions — only one of which is, what happens if I make a disastrous systems decision? Other questions concern how IS will be treated in the competition for an organization's resources, how IS's role will change under nontechnical management, and how IS fits into the traditional path to top management.

A technical disaster is the first possible consequence that

comes to mind when nontechnical managers are placed in top IS positions, but that risk has not deterred companies from exercising the option, according to Bruce Rogow, executive vice-president at Gartner Group, Inc. in Stamford, Conn.

The movement of nontechnical people into top IS positions has been going on since about 1975, Rogow reports, despite technology nightmares attributable to bad IS decisions made by a poorly informed IS chief.

A number of companies are willing to take a chance on putting a nontechnical person in charge of IS. In a survey conducted by CIO magazine last summer, 26 of the top 100 chief information officers came from nontechnical backgrounds. Their ex-

perience levels covered the spectrum of corporate activity, including finance, marketing, corporate planning and general business management.

The movement of nontechnical people into top IS positions is often part of a larger movement of people throughout the entire organization. In large firms, there is a growing tendency to cultivate potential corporate officers by giving them the opportunity to gain experience in many areas important to the business.

"There is a conscious move to develop people with broader business experience," notes Patricia "Toth" Barron, director of corporate information management at Xerox Corp. in Stamford. Not only are nontechnical managers being posted to IS, but engineers are moving into sales and marketing positions, and financial people are being rotated into manufacturing slots as well. Barron herself moved into her current position from marketing two years ago.

Executive movement within an organization "is an indication that companies realize that key staff need to get experience in other functional areas," says Douglas Ready, director of executive programs at the Boston University School of Management. The end result of this cross-training, ideally, is "functional integration and teamwork," he says.

The trend is fueled by the recognition of "mutual dependency," Ready adds. Mutual dependency means that no department can properly function without the support of other departments. Line management



ALAN TITCHNER

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cannot function without IS, and IS has no reason to exist except to serve the line departments.

#### Broadening horizons

IBM is a classic example of a company that typically seeks to broaden the experiences of its rising executives. "It's fairly common for IBM to move people into different functions. I've had a number of assignments, but

I've never before been in corporate [management]," says Larry Ford, vice-president/information and telecommunications, the top corporate IS post at IBM.

The arrival of executives such as Barron and Ford on the IS scene is "extremely significant for IS," says Michael Anderson, a director at DMR Group, Inc., a Toronto-based consulting firm. "It shows that IS is no longer

perceived as a technological backwater. It is part of the mainstream business," he explains. Seen from this perspective, IS is now an accepted step on the way to becoming CEO, some claim.

Others, however, see nothing at all new in the rise of nontechnical IS executives. They cite organizations that have considered the top IS post a nontechnical position for years.

San Francisco-based McKesson Corp. is an example of such an organization; the nation's largest drug distributor has a history of placing nontechnical people into the top IS slot. Jon d'Alessio, McKesson's vice-president of operations planning and information technologies, is a financial manager who replaced another nontechnical manager in the same position in

April 1988. "We built strategic systems 15 years ago, and we've been using systems competitively ever since, so we had to make sure we had a good link to top management," he says.

To some, the use of nontechnical managers in top IS spots reflects an ongoing desire of top managers for highly technical people. "In the early days, [top management] lacked confidence in technical managers to be effective operating managers," Rogow says. More recently, he continues, the appointments of nontechnical IS managers reflect a lack of confidence in technical managers' ability to relate to senior corporate management and link technology with larger corporate concerns.



Xerox's Barron

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In many cases, it is not necessarily the low-tech background that is appealing but the broader management skills and perspective that the general business manager brings. In fact, in instances in which there is a nontechnical IS chief today, the next person holding that position could just as well be a technical person, if the person's skills and business perspective are right.

"I don't set a pattern at Xerox. There is no reason that an IS person can't have this job," Xerox's Barron says.

What is important at Xerox, McKesson and most other firms in which nontechnical people assume the top IS slot is the integration of IS with the organization's strategic mission. The person at the top is expected to straddle both world of computers and systems. Of course, this is true when technical people assume the top IS position, too.

"Systems, per se, are never the strategy of the company," Barron says. At Xerox, technology enables the company to better pursue its strategy, she points out, so it needs someone in the top IS slot who sees technology as a means of achieving strategic objectives rather than an end in itself.

Ford, who came to IS a year ago by way of marketing and international posts, approaches the IS field not as a technical discipline but as a critical function of the business he explores. Placing a business manager rather than a technical manager in the top post, he continues, signifies

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the changed role of systems: The company has elevated IS to the same level as other major departments.

The exact impact of a nontechnical manager on IS and the organization cannot be precisely identified, but Anderson sees two areas in which effects show up quickly: The nontechnical manager gives IS more credibility with top management, and the nontechnical manager brings the entire department more into the corporate mainstream.

Barron sees herself as the IS advocate in the corporation. "I think I have more acceptance by top management," she says. In the past, a technical manager might have advocated the proper technology solution but was not adept at presenting it in terms of its impact on key business issues. Barron, whose previous as-

signments — then every function of the firm could suffer.

"There is a problem of understanding very complex technology. [Nontechnical managers] need good, credible sources of [technical] advice, or they can make a terrible mess," says Warren McFarlan, professor of business administration at Harvard Business School.

Harvard runs an executive IS

program that tries to blend technology and management perspectives. "We teach at the intersection of technology and strategy," McFarlan explains. About half the students are technical managers trying to broaden their business perspectives, and half are nontechnical managers trying to fill in their technology perspectives.

"I do feel the lack of technical

knowledge," says Barron, a graduate of the Harvard program. "I know enough to be dangerous, and I'm sure to make mistakes." When she is called on to make technical decisions, however, she relies heavily on her technical staff.

At IBM, Ford knows a lot about technology — for a nontechnical person. "I have the benefit of knowing our product

line well," he says, "but I've needed to learn the applications development process." When he needs technical backup, he turns to his own staff or to other sources of expertise within IBM.

To get his technical information, McKesson's d'Alessio goes to computer conferences and spends considerable time having his staff educate him. "My job is to ask the right questions," he



IBM's Ford

signments also included management consulting, believes she can be more effective. "I can articulate technology concerns about the directions of the business," she points out. "I come with communications skills."

Part of Ford's mission is to "wrap IBM's new corporate direction to the IS organization. IBM is working to be more marketing driven," Ford explains. For corporate IS, that means more emphasis on its own customers. "My own personal experience has been to focus on customers. In IS, our customers have to be a major focus. I'm trying to strike a balance and make IS more responsive."

#### Disaster can strike

While the movement of nontechnical executives into IS makes sense from the corporate view, it raises serious issues from the IS perspective. Running IS is not the same as running an overseas subsidiary or other more conventional posts on the corporate career path.

For instance, if a series of bad decisions derails an overseas subsidiary or sets back an organization's marketing effort, the company stands to lose a lot of money, but it is unlikely that the firm's very existence would be jeopardized. Other parts of the company can continue to function normally. But if a mission-critical IS system suffers from poor systems decisions — say, a botched distributed processing



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says. Sometimes a nontechnical manager who is ignorant of IS dogma but asks challenging questions is enough to re-energize an IS department. The need to educate the nontechnical manager forces an IS staff to re-examine the accepted ways of doing things.

Not everyone, however, is comfortable with nontechnical people making crucial technical

systems decisions. Although nontechnical managers can usually grasp enough of the technical aspects of IS to make proper decisions under normal circumstances, "it is much more difficult when technology is rapidly changing," Rogow points out.

Because of the highly technical underpinnings of IS, firms must be very careful about which nontechnical manager is placed

in IS, warns Kevin Moody, who has been acting director of corporate information and technology at the Bank of Boston for the last four months. Moody is now considered a technical person, but he spent the first 10 years of his business career in nontechnical management. "You don't need to be a technical person, but you do need to appreciate technology and be analytical and

logical," he says.

Moody compares a nontechnical manager running IS to the head coach of a football team. "You don't have to be a star football player to be head coach, but you really need to understand the game," he says. "It is not impossible to make a catastrophic decision, so you have to surround yourself with good [technical] people and know when to

take their advice," Moody adds. "You're most capable of screwing things up if you don't listen, don't understand the technology and don't have good advisors."

Increasingly, the top IS person is not expected to wrestle with small technical details. Instead, his job is to establish priorities, broad policy and direction. "If we're talking about an infrastructure issue that has corporate-wide implications, I get involved," IBM's Ford says. But if it is something very specific — for example, a question about an architecture for a particular application — Ford lets the technical staff resolve it.

The partnership approach Systems have evolved to the point where you do not need a technical person, an engineer, in the top position, suggests William Synott, director of the



Bank of Boston's Moody

banking division at Norton, Norton & Co. in Lexington, Mass., but it is difficult to strike the perfect balance between technical and managerial skills. "You need a planner, but can you plan right if you don't thoroughly understand the technology?" he asks.

The dual nature of IS, displaying both complex management and technical sides, calls for a new approach, Synott says. "We're seeing a lot more partnering, the team concept," he explains. In an ideal IS partnering arrangement, the top position — the nontechnical one — deals with planning and policy, while the second position handles technical operations.

The growing number of nontechnical IS managers suggests that the emphasis is shifting from technical to business issues, but some still argue that the mission-critical nature of IS requires that a technical person be in charge to assure smooth technical operations.

Others counter that IS is too important to the business to be left in the hands of technicians and not managers. "If the computer goes, we're out of business in an hour," says d'Alesio. With an attack at stake, nontechnical management must be deeply involved. Both sides are recognizing that there has to be a partnership combining the dual aspects of IS into a singularly effective organization. \*



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# COMPUTER INDUSTRY

## INDUSTRY INSIGHT

J. A. Savage

### Dunk the 'dough' nuts

"We don't care, we don't have to," cried bumper stickers in the waning days of the Nixon administration — as in "Ma Bell: We don't care, we don't have to."

You paid your money, but you didn't have much of a choice. Utilities had jacked up rates. Mergers created corporate giants, which stumbled over consumers and squashed their own workers.

The public cried foul to Congress, and attempts were made, hesitatingly, to enforce anti-trust laws. Corporations like IBM fought. IBM battled the Justice Department in antitrust litigation for a decade and finally won.

**Feeding frenzy**  
But to keep a veneer of respectability, most held tight and waited for the specter of Japanese companies buying the ailing industry was raised in 1983. Once Fujitsu, in its quest for Fairchild Semiconductor, was John Wayne out of Silicon Valley, electronics companies began to move. There was a major feeding frenzy, with National Semiconductor buying Fairchild, IBM buying Robin, and, in 1987, Advanced Micro Devices merging with Monolithic Memories.

At the end of the Reagan years, the veneer of competition was left in shreds by government-mandated and self-imposed divestiture of Sematech. Not only did Congress approve of the country's largest semiconductor makers getting together in a manufacturing endeavor, but also the government was willing to fund it to the tune of \$100 million per year.

This was, of course, after the companies underlined their own efforts at manufacturing efficiencies.

With nationalisms like the capitalist crown jewel, Sematech forged the new testaments to U.S. industrial health that it "Anybody can do." Instead of individual companies investing to keep ahead of the competition, little investment was made, and

*Continued on page 80*

### Enjoying relative calm after the storm

BY NELL MARGOLIS  
OF STAFF

Sometimes as news is good news for the computer industry, the financial quarter ended in June made headlines more of those times. "I'm not expecting any big surprises, and you know that last quarter there were some big surprises," said Scott Smith, an analyst at Donaldson Lufkin & Jenrette. "This looks like a pretty solid quarter, generally speaking."

After a harrowing first quarter, marked by week after week of earnings shocks from computer companies, the relative calm of the spring quarter came as a welcome relief to customers, companies and commentators alike, according to analysts (see story, page 76). However, they pointed out, the underlying industry trends have not altered significantly.

For instance, as in the past two quarters, most analysts pointed to strong new product cycles as the pivotal difference

between a mediocre or disappointing quarter and something to write Wall Street about.

Intel Corp., for example, essentially hovered as it geared up to ship the 80486. "New products are the whole story for Intel in the coming year," said Drew Peck, an analyst at Donaldson Lufkin & Jenrette.

#### Tag-of-control

Analysts agreed that the escalating emphasis on timely new products being key to a company's quarterly fate underscores the continuing shift of control from vendors to users.

Another note from the previous quarter that echoed through this period as well was the determination of companies to capture a larger share of the market, particularly on the basis of low prices. Some companies that have brought their overheads operations into the increasing prominence over the past several years.

The ironic coincidence manifested itself in a new section featured with increasing frequency

#### 1989 second-quarter earnings

No rude shocks or stellar strides reported this time around

	\$1.2B	26%	\$96	5%
Intel <sup>1</sup>	\$747	3%	\$99	(34%) <sup>2</sup>
Legent	\$31.3	37%	\$6.9	74%
Lotus	\$132.2	8%	\$10.3	(60%)
MCP	\$1.6B	31%	\$142	129%
NCR	\$1.5B	2%	\$1.1	(2%)

Includes \$17 million to cover costs associated with Livermore, Calif., plant closing

<sup>1</sup>Includes pretax gain of \$9 million from previously negotiated software entitlements

<sup>2</sup>Includes an extraordinary credit from net operating loss carryforwards

in computer industry earnings reports: the section in which a company executive either blames currency differentials for

disappointing revenue figures or emphasizes that the company did as well as it did despite adverse currency translation.

OR CRAZY

Court Judge William G. Phanner agreed that there was evidence that Perot violated the injunction.

Phanner also ordered Perot Systems to present a copy of the injunction to all prospective customers with whom the organization negotiates for business.

**No comment**  
Perot, a Texas billionaire and legendary computer executive, was traveling and could not be reached for comment.

The feud centers on the agreement Perot signed when he left EDS in 1986. The \$700 million buyout contract prevented Perot from competing with EDS for three years, but Perot and EDS disagreed about whether Perot could convert his non-compete clause to a profit-making entity after Dec. 1.

After some confusion on the issue, the judge issued the restrictive injunction against Perot on April 13.

#### Inside

- Relational Technology says it will lay even harder to get a deal. Page 76.
- The computer industry is quite out of the woods yet. Page 76.
- Comdisco spins off computer remarketing service subsidiary. Page 76.

### Perot may be cited for contempt

*More fuel added to fire as EDS hauls its founder back to court*

BY MITCH BETTS  
OF STAFF

FAIRFAX, Va. — Electronic Data Systems Corp. (EDS) appears to be getting the upper hand in its ongoing court battle with EDS founder H. Ross

Perot. Earlier this month, a Virginia judge ordered Perot's new company to show cause why it should not be held in contempt of court.

EDS had charged that Perot Systems Corp., a systems integrator based in Vienna, Va., on

at least three occasions violated a court injunction prohibiting the company from soliciting or performing any work before Dec. 1 that "contaminates" or calls for any profitable return at any point in time."

At a July 14 hearing, Circuit

### IBM continues Sugar Daddy role, buying into AMS future

BY MITCH BETTS  
OF STAFF

ARLINGTON, Va. — IBM last week acquired a 10% stake in American Management Systems, Inc. (AMS), a systems integrator and vendor of applications software in the financial and government markets.

The deal — the latest in a series of IBM investments in software firms — involved the purchase of \$18 million in AMS stock. IBM may increase its stake by an additional 10% by purchasing stock on the open market, according to the agreement.

IBM is interested in building stronger ties to independent software and services companies

so it can offer their services under systems integration contracts," said Cato D. Carpenter, a spokesman at IBM's Systems Inc., in Baltimore.

AMS, headquartered in this suburb of Washington, D.C., had 1988 revenue of \$213 million. The company typically offers generic applications packages, such as credit-management software for banks and tax-collection software for government agencies, and then tailors them to individual customers.

IBM and AMS also announced a management agreement under which AMS will develop applications software to run on IBM hardware, initially for the financial services industry. AMS already is an IBM Business Part-

ner for marketing hardware and software in that industry.

For AMS, the deal represents an opportunity to seal an even closer relationship with IBM. "Our financial services clients most often want solutions that run on IBM systems," noted AMS Vice Chairman Patrick W. Carpenter.

"The opportunity to work more closely with IBM is too tantalizing to pass up," Carpenter said. "They'd rather be insiders than outsiders."

In addition, the cash infusion comes at an ideal time for AMS, which recently recorded its first quarterly loss in seven years because of unexpected costs and lower than expected revenue from contracts with the U.S. Department of Defense.

The firm, founded in 1970 by five Pentagon "whiz kids" who were experts in systems analysis and management, has grown at a yearly rate of 20%.

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# RTI shuffles into No. 2 spot

## ANALYSIS

BY JEAN S. BOYDAN  
and AMY CORTESE  
CW STAFF

ALAMEDA, Calif. — Relational Technology, Inc.'s (RTI) revamped management team, which went into place July 1, is trying to be the relational database management system industry's Avis to Oracle Corp.'s Herz.

"We've risen to be the clear No. 2 in a field of four or five," said Christopher Grenade, the newly named vice-president of marketing. "How we differentiate ourselves from No. 1, Oracle, that's the way I'd like to be judged one year from now."

Grenade, 37, says RTI needs to make more "noise" about its products so that users can more easily compare them with Oracle's product line.

Grenade, a former Comshare, Inc. executive who was president of Marsa Groupware, Inc., in Ann Arbor, Mich., replaced Robert Healy, who had been RTI's marketing vice-president for 18 months and is now on special assignment for RTI. At the same time, RTI asked Barry Sprinser, RTI vice-president of engineering, to manage the Ingres database division — and promoted Marilyn Bohi, vice-president of product development, into Sprinser's former post.

Chief Executive Officer Paul Newton said the July management changes were aimed at speeding the company's growth. Newton would like to see international sales, now pegged at approximately 40%, grow to more than 50% of corporate revenue by the early 1990s.

On the product side, Bohi — who was instrumental in design-

ing IBM's DB2 relational DBMS — will attempt to ensure RTI compatibility with IBM DBMS products. RTI's Ingres already has gateways into IBM's IMS and DB2 databases.

In an interview last week, Bohi stressed the importance of improving the structure on RTI's software development cycle.

That, she said, will become increasingly important to ensure timely releases for RTI products as the firm grows beyond last year's \$87 million in revenue to a \$100 million-plus company.

A year after declaring itself a

marketing organization, RTI's

metamorphosis has not been readily apparent. Known for its excellent technology, RTI has repeatedly been outshined by archival and marketeer par excellence Oracle.

Also, two agreements with Digital Equipment Corp., partnering Ingres DBMS and tool technology with DEC's VAX tools and an Ultron DBMS, have backfired, according to Anthony Pepe, an analyst at Stamford, Conn.-based Gartner Group, Inc. "Multiple images" have confused RTI's identity, he said, causing people to ask, "Is RTI a tools or a database company?"

Last October, RTI entered into what was billed as an exclusive agreement with DEC, under which the companies would jointly market Ingres tools for the VAX, and both sales forces

would receive commission for the sales. At the announcement, both companies talked about the "cultural match" between them.

RTI hardly had time to bask in the endorsement when DEC signed an agreement with Culinet Software, Inc. for its VAX tools, at which announcement a DEC senior vice-president denied having an exclusive agreement with RTI. DEC explained the apparent contradiction by stating that the RTI agreement was being for DEC's database products, and RTI had not bind the DEC corporate division, whose policy is not to enter into exclusive agreements.

Less than a year later, RTI struck another agreement with DEC, this time to license to DEC the Ingres database technology. RTI's bread and butter. The deal was announced by DEC, without mention of RTI — turning an apparent RTI coup into a market-fiasco fiasco and leaving many to wonder whether RTI had sold its soul, said Gartner Group analyst Mark Finley.

## Industry not quite out of the woods

BY RICHARD PASTORE  
CW STAFF

The computer industry may have made it to Grandma's house relatively unharmed this quarter, but the wolf is still lurking outside, looking for a way in.

Apple Computer, Inc. reported a fair revenue hike but slim profit growth compared with last year's levels. "It was a pretty solid report in many respects," says a government spokesman, rebounded sharply by about 3%, and operating expenses as a part of sales fell 2%, said John Ross, an analyst at Alex Brown & Sons.

"The slowing thing was the slowdown in sales" over the previous quarter, which Ross said he expects to continue for the rest of Apple and Compaq Computer Corp.'s "unit" volume growth will still be rather encouraging but at a slower rate than the last two years," he said. Analysts added that the slowdown should continue through the end of the calendar year.

After a tortuous labor, Lotus Development Corp. finally bore 1-2-3 Release 3.0 and sent out improved revenue by way of announcement.

"I think they've not themselves a very positive constructive platform for the future," said David Beyer, an analyst at

Montgomery Securities.

The delivery took its toll on Lotus' spring quarter, however — witness a dip in margins. "It's been very expensive for them to maintain market share in a period in which they didn't have 1-2-3 Release 3.0 available," Beyer said.

Publishing Corp., which added several points to its solid bat-ting average, and systems inte-

grator Legent Corp., whose solid first complete quarter in its newly merged state backed analysts' and users' early bets that Duquesne Systems, Inc. and Morino, Inc. would be a winning

team.

The semiconductor sector, with Intel Corp. showing the way with a 24% drop in income, is a victim of mainly inventory management on the part of its customers. Computer firms worried about a recession are not building chip inventories, according to Drew Peck, an analyst at Donaldson Lufkin & Jenrette.

"All semiconductor companies are saddled with inventory normally carried by their customers," Peck said. "Furthermore, expectations for the third quarter are mixed at best because customers don't feel like taking on any inventory now."

NCR Corp. reported profit and revenue growth of only 2%. Montgomery Securities analyst John Jones said the management at NCR "has a lot of restructuring to do; their products aren't competing right now."

On-line transaction processing (OLTP) players Tandem Computers, Inc. and Systech Computer Systems, Inc. re-

ported robust growth for the quarter. Apparently, the public's interest in specific for OLTP is fading the vendors as well.

Storage products companies Seagate Technology, Inc. and Maxtor Corp. logged moderate profit growth for the second quarter. But Iomega Corp. took a tumble while taking steps to repurchase up to one million shares of its common stock.

"Telecommunications companies are doing great," said Dale Knickmeyer, president of Meta Group Inc., a market research firm in Westport, Conn. MCI Communications Corp. and Network Equipment Technologies, Inc., for instance, both checked in with healthy reports. "There clearly seems to be price demand and elasticity in this market."

## Comdisco begets high-tech remarketing subsidiary

BY ELLIS BOOKER  
CW STAFF

ROSEMONT, Ill. — Comdisco, Inc., the industry's largest independent remarketer and lessor of computer and high-technology gear, early this month created a subsidiary to manage and remarket high-technology assets for third parties.

The new entity, dubbed Comdisco Portfolio Assets Management, Inc. (COPAM), will manage, administer, liquidate, replace or refinance a company's high-tech capital assets for public and private companies as well as other equipment lessors. Analysts said they were somewhat surprised by the announcement, noting that Comdisco itself already offers many of these services.

"They're in that business today. Lessors now wholesale to other lessors ... it's normal practice," said Thomas J. Dornan, director of investment banking at IDX Financial Services Corp. subsidiary Technology Investment Corp. in Framingham, Mass.

Donovan speculated, however, that the new subsidiary might be used as a vehicle to acquire the assets of CIS Corp. in Syracuse, N.Y., the industry's No. 2 lessor, which went into Chapter 11 bankruptcy in January and which Comdisco was said to be inspecting.

"We have made a bid for some of their computer portfolio," confirmed Comdisco spokesman James Hyland. But he said the bid, which was submitted several weeks ago, proposed only to make Comdisco an agent for remarketing CIS assets. "Certainly, the new company could be a vehicle for this," Hyland added.

Among other bidders for CIS is an investment group spearheaded by computer industry legend Harold Geneen (CW, July 10).

In a separate announcement earlier this month, Comdisco told investors that it expects net earnings this year of \$105 million to \$110 million; revenue is expected to top \$1.6 billion for the fiscal year ending Sept. 30. Last year, Comdisco posted earnings of \$92 million on revenue of \$1.3 billion.



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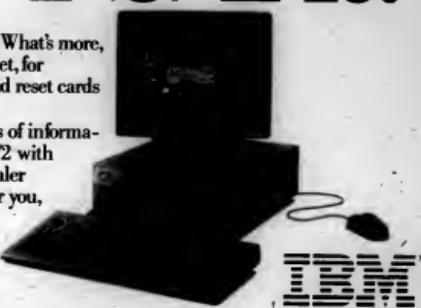
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**IBM**

## Savage

FROM PAGE 73

they all fell behind, so antitrust regulations had to be ignored in order to save the indigenous semiconductor industry.

With Sematech now firmly rooted and with no opposition from the Bush administration, other-for-profit consortiums are

springing up almost as fast as McDonald's franchises.

Instead of protecting consumers by curbing the potential for price fixing, Congressmen such as Rep. Edward Markey (D-Mass.) are taking a renewed interest in selectively repealing antitrust laws. There are calls for trade barriers to shut out international competition, which sometimes functions to keep

consortiums honest.

Executives are flush with new possibilities in the post-conglomerate era. Not only are chip consortiums such as Sematech and the recently formed U.S. Memories a reality, but computer companies have formed a lobby to ensure that their new freedoms continue.

Things may be good for those running business from the

top, but consumers should worry. With cooperation between competitors, there is less chance for a consumer, no matter how big, to influence vendors. And the specter of price fixing always hovers when those who should be rivals are meeting behind closed doors.

Savage is a *Computerworld* West Coast senior correspondent.

## IN BRIEF

### Try, try again

Billerica, Mass., workstation maker Adage, Inc. last week announced plans to merge with West Chester, Pa.-based General Business Information Corporation (GBIC), which offers manufacturing, real estate and financial services operations. GBIC and its affiliates currently hold close to 20% of the Massachusetts vendor, which recently went halfway down the corporate aisle with Multiflow, Inc. but never made it to the altar.

### Buying back

Apple Computer, Inc.'s effort to divest itself of its 3,423,792-share stake in desktop publishing software player Adobe Systems, Inc., is all the better to compete with you, my deer — had no trouble turning up at least one eager buyer. Adobe announced its intent to buy up 300,000, or approximately \$7.2 million worth, of the shares. The repurchase, according to Adobe, may work to the advantage of employee benefit plans.

### Backing off

Unfavorable conditions in the technology sector of the stock market were cited as the reason behind Streamline Technology, Inc.'s mid-July withdrawal of its proposed convertible stock and debentures offering. The company, which was going to use the proceeds of the recently withdrawn offerings to redeem some senior debentures, has not given up the end — only any immediate means, according to a spokesman.

### New kid on the block

Atlanta-based MicroBilt Corp., purveyor of application-specific communications systems to industries that serve multiple remote sites, is about to become a wholly owned subsidiary of E & R Block, Inc. The approximately \$144 million deal will join MicroBilt's resources with those of Block's burgeoning Computer, Inc. communications empire.









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WASHINGTON, D.C.: Professional H-8 Drive, Falls Church, VA 22001. (703) 573-4115.

CHICAGO: 10400 West Higgins Road, Suite 300, Rosemont, IL 60018. (312) 627-4433.

LOS ANGELES: 18004 Sky Park Circle, Suite 100, Inglewood, CA 90714. (714) 250-0164.

SAN FRANCISCO: 18004 Sky Park Circle, Suite 146, Inglewood, CA 90714. (714) 250-0164.

### RESEARCH TRIANGLE OPPORTUNITIES

Software development and systems integration opportunities are available in the Research Triangle area of North Carolina. We are seeking a few individuals to join our team. We have openings for our PROGRAMMERS/ANALYSTS that would be a great career "investment" for any dynamic, forward-thinking professional. We offer a unique opportunity available in our Carolina and Virginia offices for individuals who possess 1+ years experience with standard's DB2/4. CTG can provide a valuable alternative to the trend of augmentation and merger.

Each year we invest over \$6 million in our computer and local communications facilities to keep you, and your career, on the cutting edge of technological developments. In addition, we offer an excellent salary and benefit package. Travel opportunities . . . but not guaranteed.

If you have proven success, a desire to work for an exciting, vibrant company, and the desire to "invest" in your future, contact:

COMPUTER TASK GROUP, 159 Executive Center Drive, Suite 8117, Greenville, SC 29615. (803) 297-4790.

CTG logo

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## COMPUTER CAREERS

### HEAD OF COMPUTER DIVISION

Princeton University's Plasma Physics Laboratory, a leading high technology research and development facility, currently has an opening for the Head of its Computer Division.

This position will be responsible for directing and managing an organization of approximately 80 computer professionals involved in both the institution and adaptation of scientific state-of-the-art hardware and software.

Prior "hands-on" experience within both a time-sharing and a process control environment is highly desirable. Must also have in-depth knowledge of the operation and design of data acquisition systems. Candidates being considered for this function will have a thorough understanding of DEC, SEL, and IBM Computer and their overall application within a research and development setting. Knowledge of CAMAC computer interface is highly desirable. This position will be responsible for interfacing with senior scientists and mathematical researchers, and working at the frontier of experimental theoretical research in controlled nuclear fusion.

Minimum requirements for the position are 10-15 years experience in computer control and data processing systems along with extensive experience managing major projects. A B.S. degree in Electrical Engineering, Computer Science or equivalent is essential, having advanced degrees is highly desirable.

We offer a competitive salary fully commensurate with experience and a comprehensive benefits program.

Please submit detailed resume to Mr. B. Cohen, Plasma Physics Laboratory, P.O. Box 451, Princeton, N.J. 08543. No phone calls please.

Equal Opportunity/Merit-Title VII Employer M/F

### Plasma Physics Laboratory

Princeton University

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\$24,000 to \$55,000  
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DATA Mgmt Sys, FOCUS CAD, CAM, DAE  
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DATA Mgmt Sys, FOCUS CAD, CAM, DAE  
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LAX MAPS, FOCUS CAD, CAM, DAE  
TECH WRITERS, DP, SALES, DMS

## Now you can recruit the right people in the right places at the right price

It's the IDG Communications Computer Careers Network, and it lets you run the most targeted and cost-efficient recruitment program possible.

Its many options help you recruit qualified computer and communications professionals - regionally or nationally - with combination buys of up to five leading newspapers. And all together, the Computer Careers Network delivers your message to an audience of well over 1 million qualified computer professionals.

### Look at what the Computer Careers Network lets you do:

Customize your recruitment program. The Network's five newspapers - Computerworld, InfoWorld, Network World, Digital News, and Federal Computer Week editions - let you tailor your recruitment program to your specific needs. You can buy as many as five newspapers with add-on options. That way you can recruit from the combination of computer and communications professionals that's best for you.

Target your ad placement. You can place your advertising exactly where you want. If you wish to recruit within a specific area, you can advertise in the regional editions of the newspapers you choose - East, West, or Midwest. Or you can extend your reach by running in two regions - or even nationally. Plus - you can still take advantage of stand-alone national rates for individual newspapers.

Reach qualified professionals cost efficiently. Gone are the days when you have to worry about paying for waste circulation. The Computer Careers Network lets you buy the combination of newspapers that will deliver your recruitment message to qualified computer and communications professionals - and only those qualified professionals you need to reach.

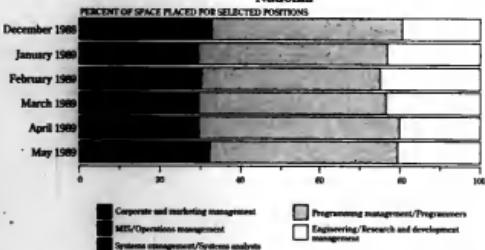
To put the new Computer Careers Network to work for you - regionally or nationally - call the sales office nearest you, or contact John Corrigan, Classified Advertising Director, at 508-879-0700 ext 676.

One quick phone call can give you all the information you need to run your recruitment advertising in up to five leading industry newspapers.

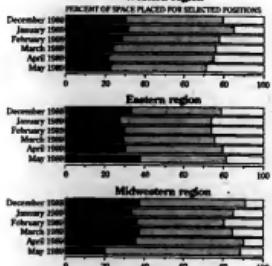
## CAREER INDEX

### Computer recruitment advertising activity\*

#### National



#### Western region



\*Analysis of computer recruitment advertising space in Computerworld and selected major U.S. newspapers







YES, I want to receive my own copy of COMPUTERWORLD each week. I accept your offer of \$44.00\* per year — a savings of 57% off the single copy price. In addition, I'll receive special bonus sections of COMPUTERWORLD Focus on Integration.

First Name  MI  Last Name

Title  Company

Address

City  State  Zip

Address shown:  Home  Business  New  Renew Basic Rate: \$48 per year  
\*U.S. Only. Canada \$110, Central/South America \$130, Europe \$195, all other countries \$295. Foreign orders must be prepaid in U.S. dollars.

Please complete the information to the right to qualify for this special rate.

**COMPUTERWORLD**



YES, I want to receive my own copy of COMPUTERWORLD each week. I accept your offer of \$44.00\* per year — a savings of 57% off the single copy price. In addition, I'll receive special bonus sections of COMPUTERWORLD Focus on Integration.

First Name  MI  Last Name

Title  Company

Address

City  State  Zip

Address shown:  Home  Business  New  Renew Basic Rate: \$48 per year  
\*U.S. Only. Canada \$110, Central/South America \$130, Europe \$195, all other countries \$295. Foreign orders must be prepaid in U.S. dollars.

Please complete the information to the right to qualify for this special rate.

**COMPUTERWORLD**

1. **BUSINESS INDUSTRY** (Circle one or more)

- Manufacturing (other than computer)
- Manufacturing (computer)
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- Wholesale
- Business Services (except CPA)
- Construction
- Transportation
- Utilities
- Communications Systems/ Public Utilities
- Mining
- Commercial/Residential Building
- Manufacturing/Processing
- Systems/Standards
- Consulting Services, including Software Service
- Business Time-Sharing Consulting
- User Groups
- Computer-Related Dealer/Wholesaler/Packer
- User
- Other

Please specify

2. **TELE/FUNCTION** (Circle one or more)

- DRIVING
- DR. MFG. Svc.
- DR. MFG. Svc. Sales
- DR. MFG. Svc. Marketing
- DR. MFG. Svc. Research
- DR. MFG. Svc. Production
- DR. MFG. Svc. Admin.
- DR. MFG. Svc. Import/Export
- DR. MFG. Svc. Programming
- DR. MFG. Svc. Sales/Marketing
- DR. MFG. Svc. Other

OTHER COMPANY MANAGEMENT

- 11. Pres/Chairman/Genl. Mgr.
- 12. Vice Pres/Asst. Pres/Genl. Mgr.
- 13. Pres/Chairman/Genl. Mgr.
- 14. Engg. Mgr.
- 15. Financial Mgr.
- 16. Marketing Mgr.
- 17. Sales Mgr.

OTHER PROFESSIONALS

- 18. Consulting Mgr.
- 19. Financial Analyst/Accounting Mgr.
- 20. Educator/Journalist/Librarian/Studies
- Other

Please specify

3. **COMPUTER EQUIPMENT** (Circle one or more) (Indicate which you are personally involved with as user, vendor, or consultant)

- 21. Computer
- 22. Microcomputers
- 23. Microcomputers/Small Business Computers
- 24. Mainframes
- 25. Communications Systems
- 26. Computer Components
- 27. No Computer involvement

E493-4

1. **BUSINESS INDUSTRY** (Circle one or more)

- 14. Manufacturing (other than computer)
- 15. Manufacturing (computer)
- 16. Retail
- 17. Wholesale
- 18. Business Services (except CPA)
- 19. Construction
- 20. Transportation
- 21. Utilities
- 22. Communications Systems/ Public Utilities
- 23. Mining
- 24. Commercial/Residential Building
- 25. Manufacturing/Processing
- 26. Systems/Standards
- 27. Consulting Services, including Software Service
- 28. Business Time-Sharing Consulting
- 29. User Groups
- 30. Computer-Related Dealer/Wholesaler/Packer
- 31. User
- 32. Other

Please specify

2. **TELE/FUNCTION** (Circle one or more)

- 33. DRIVING
- 34. DR. MFG. Svc.
- 35. DR. MFG. Svc. Sales
- 36. DR. MFG. Svc. Marketing
- 37. DR. MFG. Svc. Research
- 38. DR. MFG. Svc. Production
- 39. DR. MFG. Svc. Admin.
- 40. DR. MFG. Svc. Import/Export
- 41. DR. MFG. Svc. Programming
- 42. DR. MFG. Svc. Sales/Marketing
- 43. DR. MFG. Svc. Other

OTHER COMPANY MANAGEMENT

- 44. Pres/Chairman/Genl. Mgr.
- 45. Vice Pres/Asst. Pres/Genl. Mgr.
- 46. Pres/Chairman/Genl. Mgr.
- 47. Engg. Mgr.
- 48. Financial Mgr.
- 49. Marketing Mgr.
- 50. Sales Mgr.

OTHER PROFESSIONALS

- 51. Consulting Mgr.
- 52. Financial Analyst/Accounting Mgr.
- 53. Educator/Journalist/Librarian/Studies
- Other

Please specify

3. **COMPUTER EQUIPMENT** (Circle one or more) (Indicate which you are personally involved with as user, vendor, or consultant)

- 54. Computer
- 55. Microcomputers
- 56. Microcomputers/Small Business Computers
- 57. Mainframes
- 58. Communications Systems
- 59. Computer Components
- 60. No Computer involvement

E493-4



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

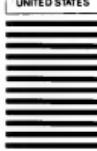
**BUSINESS REPLY MAIL**

FIRST CLASS PERMIT NO 55 MARION, OH 43306

POSTAGE WILL BE PAID BY ADDRESSEE

**COMPUTERWORLD**

P.O. Box 2044  
Marion, Ohio 43306-2144



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

**BUSINESS REPLY MAIL**

FIRST CLASS PERMIT NO 55 MARION, OH 43306

POSTAGE WILL BE PAID BY ADDRESSEE

**COMPUTERWORLD**

P.O. Box 2044  
Marion, Ohio 43306-2144





## It's easy to place your recruitment ad in Computerworld!

All the information you need is right here. Just call Lisa McGrath at 800-343-6474 (in MA, 508-879-0700). Or, if you want, you can send us the form below via mail or to our FAX machine. You can reach our FAX at ext. 739 or 740 at either of the above numbers.

The following information will help you determine the size ad you'd like to run and when you'd like to run it.

**CLOSING DATES:** To reserve space, you need to call us by 5PM (all continental U.S. time zones), 6 days prior to the Monday issue date. We need your ad materials (camera-ready mechanical or copy for pub-set ad) by 5PM, 5 days prior to the weekly issue.

**AD COPY:** We'll typeset your ad at no extra charge. You can give us copy via phone, U.S. mail, or FAX. To typeset an ad for you, we need clean, typewritten copy. Figure about 30 words to the column inch, not including headlines. (There are seven columns on each page.)

**LOGOS AND SPECIAL ARTWORK:** Any logos or special artwork should be enclosed with your ad copy. For best reproduction, please send us either a stat of your logo or a clean sample on white bond paper.

**COLUMN WIDTHS AND MINIMUM DEPTHS:** Your ad can be one of seven different widths. There is a minimum depth requirement for each width. You can also run larger ads in half-inch increments. The chart below can serve as a reference.

NUMBER OF COLUMNS	WIDTH	MINIMUM DEPTH
1 column	1 1/4"	2"
2 columns	2 5/8"	2"
3 columns	4 1/16"	3"
4 columns	5 9/16"	4"
5 columns	6 15/16"	5"
6 columns	8 3/8"	6"
7 columns	9 3/4"	7"

**RATES:** Your rate will depend on the size of your ad and whether you choose to run regionally or nationally. The national rate is \$13.50 per line or \$189.00 per column inch. The regional rate (Eastern, Midwest or Western edition) is \$9.00 per line or \$126.00 per column inch. You can run your ad in any two regions for \$11.60 per

line or \$162.40 per column inch. In all cases, you can earn volume discounts.

The minimum ad size is two column inches (1 1/4" wide by 2" deep) and costs \$378.00 if run nationally. A sample of this size appears below. You can run larger ads in half-inch increments at \$94.50 per half inch. Box numbers are available and cost \$25 per insertion (\$50 if foreign).

### Programmer Analyst

This is a sample ad for Computerworld's Computer Careers section. It's a two column inch ad, 1 1/4" wide by 2" deep. It's in all caps. Remember that you can run your ad in either a regional or national edition, or a combination of both. The ad is 1 1/4" inches wide by two inches deep (less the headline). The ad is \$378.00 in the national edition, \$252.00 in the Eastern edition, \$224.00 in the Midwest edition, and \$204.00 in the Western edition. Volume discounts apply.

**SAMPLE AD SIZES AND PRICES:** To assist you in planning your recruitment advertising, the following shows common ad sizes and their respective costs.

One Region (East/West Midwest/National/ West)		Two Regions (East/West Midwest/National/ West)	
1 column x 2"	\$ 252.00	\$ 378.00	\$ 578.00
2 columns x 2"	\$ 504.00	\$ 649.00	\$ 756.00
3 columns x 2"	\$ 1,154.00	\$ 1,461.00	\$ 1,701.00
4 columns x 2"	\$ 2,520.00	\$ 3,448.00	\$ 3,780.00
5 columns x 2"	\$ 4,110.00	\$ 5,684.00	\$ 6,151.00

**PAYMENT:** If you're a first time advertiser or if you haven't established an account with us, we need your payment in advance (or with your ad) or a purchase order number. Once you have established an account with us, we'll bill you for any ads you run as long as your payment record is good.

### COMPUTER CAREERS NETWORK BUYS:

You can take advantage of special rates that let you run your ad in Computerworld and Computerworld's sister newspapers at special rates. Choose from Computerworld Focus on Integration, Network World, Infolibrarian, Digital News and Federal Computer Week. Call for details.

### Computerworld Recruitment Advertising Order Form

Ad Size: \_\_\_\_\_ columns wide by \_\_\_\_\_ inches deep

Issue Date(s): \_\_\_\_\_

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

Region:  East  Midwest  West  National    
 East/Midwest  Midwest/West  East/West

Send this form to: COMPUTERWORLD RECRUITMENT ADVERTISING  
375 Cochituate Road, Box 9171, Framingham, MA 01701-9171

800-343-6474 (in MA, 508-879-0700)

Teletypewriter Extensions: 739 or 740

# MARKETPLACE

## Looking beyond sticker price

*If hidden costs aren't considered, your new system could be a headache*

BY MICHAEL ERSCHLOE  
SPECIALE TO CP

You're buying a new computer system. Your vendor has given you an attractive price. You are about to sign a contract. But are you sure you have identified all the costs you will incur by acquiring the new system? There are many hidden ones of which you might not be aware. Be sure to give special consideration to the following factors:

**Property taxes.** The amount of your property tax will be based on a determination of the system's fair market value. Depending on local tax codes and the assessor's interpretation of them, computer systems may be valued by one of the following methods: actual cash value, acquisition cost minus depreciation allowed by law, depreciated book value or negotiated rate.

**Property taxes are assessed only for equipment installed on or before the original acquisition date. It is possible to reduce property taxes by shifting a scheduled installation date to a later local assessment.**

**Sales taxes.** The effect of state sales taxes on the cost of an acquisition can be significant. Check with local sources such as state tax officials to determine

the actual rate. If your computer is leased, sales tax will generally be due on a portion of the annual lease amount.

**Insurance.** Insurance costs typically increase considerably with the purchase of a new system. This is especially true if your existing computer has little current market value. Annual insurance premiums will vary widely depending on the risks covered and the location of the equipment.

**Insuring against loss by fire is the most significant cost and varies according to the fire rating of the building that will house the computer. It can be as low as 8 cents per \$100 of insured equipment for a newer steel or brick office building with sprinkler and halon systems.**

**On the other hand, it can be as high as \$1 per \$100 of the value of the equipment for an older wood building without a sprinkler or halon systems.**

**Installation costs.** Most equipment require installation and related support services. Along with the hardware installation, items that may involve additional charges include: site planning assistance, inspection of equipment prior to delivery, cables, relocation of existing equipment within the data cen-

ter, testing, software installation and system generation.

**Conversion costs.** A decision to acquire a different system or change the current configuration may hinge on installation and conversion costs. In many

the new site, new cables if longer ones are required, refurbishing, reconfiguration and floppy-disk microcoding.

**Facilities costs.** In some cases your data center may not be properly equipped to handle a new system. You may need to run the old system while the new one is installed and conversion work is performed. You may need to install or expand the following: electrical power and

- JCL changes.
- Program modifications.
- Program recompilation and debugging.
- Loading of operating systems and outside software packages.
- Programs to dump and reload memory to magnetic media.
- Parallel runs to check the data files and report output produced by the converted programs.
- Retraining operators, programmers and management.
- Consultants' fees.

To avoid jeopardizing your budget, you should determine if any of these considerations could adversely affect the purchase, installation and conversion of a new system. If your acquisition is well planned, it will provide welcome relief. If not, it may turn into just another headache, and a very expensive one at that.

Ershloe is managing editor of "Computer Economics Sourcebook" in Cambridge, Calif.

**D**ON'T ASSUME there won't be personnel costs just because there are no extra programming expenses.

cases there may be a need to retain the original equipment during the conversion period; doing so may mean incurring duplicate costs for a period of six to 12 months or longer. This approach will impact personnel expenses as well as facility costs.

**Lease termination.** These charges will apply if you are ending your lease prior to the contractual termination date. Some leases provide that, in the event of a sublease of the equipment, the lessor will allow the lessee to use lease payments to offset rental lease payments.

**But sublessees can result in additional costs, including stipulated termination charges, freight for shipping the computer to the new lessee, insurance while in transit, reinstallation at**

receptacles, under-floor ducts for cables, fire alarm and control systems, room modifications, wall cooling, uninterrupted power supplies, air conditioning and telephone lines for modems.

**Personnel costs.** Don't assume there won't be personnel costs just because there are no extra programming expenses. Most IS installations are already committed to a full schedule of application development and maintenance. Because of this commitment, a conversion budget must include the cost of deferring application development and maintenance during testing and conversion stages of the new system.

Programmer and machine operator costs to consider include:

### The BoCoEx index on used computers

*Closing prices report for the week ending July 14, 1989*

	Closing price	Recent high	Recent low
IBM PC Model 076	\$475	\$625	\$400
XT Model 066	\$800	\$1,150	\$700
XT Model 069	\$1,225	\$1,400	\$950
AT Model 099	\$1,725	\$1,850	\$1,500
AT Model 239	\$1,700	\$2,100	\$1,700
AT Model 339	\$1,800	\$2,000	\$1,700
PS/2 Model 50	\$1,750	\$2,000	\$1,700
PS/2 Model 60	\$3,200	\$3,300	\$2,500
Compaq Portable I	\$465	\$750	\$400
Portable II	\$1,700	\$1,800	\$1,700
Portable III	\$3,675	\$3,900	\$2,800
Portable 386	\$1,900	\$2,000	\$1,975
Plus	\$900	\$1,300	\$900
Daystar 286	\$1,300	\$1,350	\$1,200
Daystar 386	\$2,800	\$3,000	\$2,800
Apple Macintosh 512	\$800	\$1,050	\$800
512B	\$750	\$925	\$600
Plus	\$825	\$1,150	\$750
II	\$3,400	\$4,175	\$3,425
Macintosh 386	\$1,700	\$1,800	\$1,600
Zenith 184 Superport	\$1,775	\$1,775	\$1,300

INFORMATION PROVIDED BY THE BOCO COMPUTER EXCHANGE CORP.

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CB	AS400 - System 36, 38, 43XX	CB
CB	Call 800-328-6405	CB
CB	IN TN 901-373-9822	CB
CB	COMPUTER BROKERS, INC.	CB
CB	2978 Shelby St., Memphis, TN 38134	CB
CB	"Since 1974"	CB
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937X

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## Guar-an-tee, n.

1. A pledge or assurance; specifically, (a) a pledge that something is as represented and will be replaced if it does not meet specifications; (b) a positive assurance that something will be done in the manner specified.

## Tri-dex, n.

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# TRAINING

## Tailoring training to custom fit

*End-user classes geared to specific groups can offer numerous benefits*

BY NAOMI KARTEN  
SPECIAL TO CW

Most end-user computer courses, whether delivered by employees of an in-house staff or training vendors, are generic programs. This kind of training is the easiest to plan and deliver, especially given the limited training resources of many organizations.

However, the convenience of generic training diminishes in importance when compared to the long-term benefits provided by training that is customized. Tailored training, by its selective nature, avoids many of the problems inherent in generic, one-size-fits-all training approaches. In addition to addressing the specific needs of students, such tailored training can generate discussion of new uses of computing within a firm and facilitate evaluation and modification of training programs.

In a generic classroom situation, you will find students with disparate levels of computer proficiency. Because these students do not come with an equal need

to know features, functions and techniques, much of the coursework — examples, exercises and readings — is unlikely to fit the immediate needs of most students. The result is either an "attend-and-forget" syndrome or poor attendance.

Tailored training, on the other hand, is customized for the immediate needs of a specific function, area or business unit.

Course objectives are determined jointly by training professionals and representatives of the end-user department, who can articulate required skills and criteria for evaluation. When departmental representatives participate in planning classes that revolve around their specific needs, they have a greater stake in a successful outcome.

In helping set course objectives, managers also become more conversant with the risks they face and the responsibilities they assume for the computing their employees are doing.

Tailored training can be business-oriented rather than product-oriented. It is more likely to revolve around real problems

that the department is facing or expects to face. Students can be shown how to apply the computational techniques and analysis and resolve these problems. This problem-solving orientation discourages the tendency to place hands on the keyboard first and think about the problem later — if at all.

In addition, course exercises

that one product if a project calls for it.

Each class is delivered only to members of the department and even then only to department members whom a manager designates, reducing the number. As a result, no-shows are less likely to be a problem.

Tailored classes can be forums for identifying unique departmental responsibilities requiring special procedures. For example, a department preparing reports to be sent to a regulatory agency may need help incorporating certain checks and

other relevant uses of the material being presented. Thus, the scope of the class can extend beyond the specific agenda along beneficial lines.

The success of tailored training is easier to gauge because it can be based on performance criteria established at the outset. Similarly, training problems are easier to diagnose and solve.

Tailored training can be planned to extend beyond a single course. It may be appropriate to develop an entire curriculum that addresses a range of departmental needs.

Because trainers develop a perspective of the overall needs of the area, they can fine-tune course material to highlight key issues, avoid irrelevant topics and maintain consistency in format and style across courses.

Training is often viewed as a reactive function for which benefits are difficult to demonstrate. Training tailored to a specific department is a means of moving from a come-and-get-us orientation to a go-and-get-'em approach that focuses on generating documented benefits by supporting business needs.

Karten is president of Karten Associates in Randolph, Mass., and editor of the monthly newsletter "Managing End-User Computing."

## TAILORED TRAINING can generate discussion of computing within a firm and facilitate evaluation of training programs.

can revolve around the development of applications that the department will actually use; retention is improved because the material presented is relevant to students' work. They see firsthand not only how to use a product or a technique but also how it can be usefully implemented.

Classes can be limited to the specific techniques the department needs, thus trimming class length and narrowing the focus. Programs can also address more

balances in its applications.

A manager can determine a member of his end-user department to serve as internal product support specialist after training is completed. This individual might serve as the first source of support to department members, with additional help available from the training department or the information center.

Because students in a tailored program are from the same firm, class discussion often involves

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August 7

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August 14

Why training doesn't solve every performance problem

August 21

Preparing managers and users for CASE (Computer-Aided Software Engineering)

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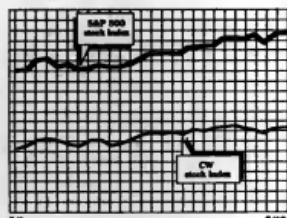
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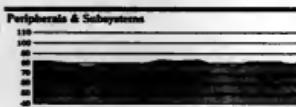
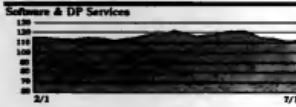
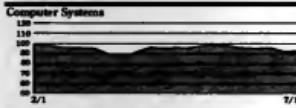
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Index	Last Week	This Week
Communications	123.3	124.5
Computer Systems	94.1	95.1
Software & DP Services	111.4	111.5
Semiconductors	57.8	56.6
Peripherals & Subsystems	81.4	81.7
Leasing Companies	113.4	115.5
Composite Index	90.1	90.5
S & P 500 Index	138.5	139.6



## Communications and Network Services

## Computer Systems

## Leasing Companies

AMPLICON INC	118	31	38	6.8	5.1
CAPITAL ASSETS INVEST. INC	8	1	7.4	0.0	0.0
COMCO INC	38	28	37.75	0.8	2.2
CONTINENTAL INFO-SYS	9	0	6.65	0.0	0.0
LSI CORPORATION	17	13	15.75	0.3	0.1
PHOENIX ALUMINUM INC	68	64	4.25	0.1	0.1
SELECTER INC	68	64	6.0	-0.1	-1.7

## Let down

*Despite positive announcements, IBM shares drop off slightly*

Good news does not always lead to higher stock prices. IBM found this out when, after announcing a strong second-quarter earnings report, a patent-licensing agreement with Compaq Computer Corp. and software development plans with American Management Systems, Inc., its shares fell 2 points to close Thursday at 112¾. AMIS, however, shot up 1¾ points to close at 124, and Compaq climbed 1¾ to 93¾.

Sequent Computer Systems, Inc. also had a big week after releasing a much brighter earnings report than analysts had expected. The parallel processing systems supplier's stock rose 34 points to close at 25%.

announcing strong earnings, Tandem Computers, Inc. finished at 194, up 14 points.

On the downside, Intel Corp., which reached an agreement to supply AT&T with personal computers, fell 1 1/4 points to close at 28%. Fellow chip-maker Motorola, Inc., however, finished up 2 3/4 points at 56%. Cray Research, Inc. continued to drop, finishing at 43%, down 3 1/4%. Digital Equipment Corp. closed at 111 1/2, down 1 1/2%.

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# Sun, Lotus gang up in Unix push

BY JAMES DALY  
CW STAFF

**MOUNTAIN VIEW, Calif.** — Sun Microsystems, Inc. and Lotus Development Corp. last week teamed up in a software development pact aimed squarely at introducing Unix to the general-business office in which IBM-dominated operating systems software dominates.

Although both companies refused to reveal either product specific or a ship date, Lotus has agreed to develop products for Sun's three computing platforms: the Scalable Process-

or Architecture-based workstations, the Motorola, Inc. 68000-based Sun 3-line and the Intel Corp. 80386-based Sun 3/460.

The absence of general-business application software has kept Sun from making significant inroads in all but the power-hungry financial community.

Analysts said the alliance is a natural fit for both companies. With the stroke of a pen, Sun is quickly aligned with a firm famous for its high-quality software — including the best-selling 1-2-3 spreadsheet program — while the Cambridge, Mass.-based Lotus enters the running

for lucrative government contracts, which often require Unix compatibility.

Earlier in the week, Sun had furthered its thrust toward the general-business market with a similar technology and marketing agreement with Sybase, Inc. Arrangements were also expected next month with other relational database vendors.

The alignment with Sun marks a fundamental change for Lotus, which had previously sold to an exclusively IBM-oriented environment. "Our strategy has evolved," said Frank Moore, vice-president of networked ap-

plications and systems. "The business we see now is one in which users have a variety of LANs interconnected ... and we believe Unix is the way for this to happen."

## It couldn't hurt

Analysts said the move will help Lotus, which has recently suffered through several down quarters, keep all the bases covered. "Lotus may not be completely convinced that the changeover from DOS to Unix will occur, but they sure want to be there if the swing does happen," said Michael Sater, editor of the newsletter "Microprocessor Report."

Although company officials

backslapping, Sun President Scott McNealy was careful to limit the scope of the announcement to "a lot of lip." There is no product announcement imminent today and no ship date," he said. "We won't discuss a product until we have one ready to go."

Lotus officials, however, said they are well along in their development cycle, and the move has been relatively easy because it is not a complete rewrite of Lotus applications. "We're going to use the same code that's going into the mainframe version of Lotus' 1-2-3," said Chris Wright, product manager for the forthcoming product.

*West Coast Business Chief  
John Barnes contributed to  
this report.*

## Sun

FROM PAGE 1

Street doesn't see this opportunity five years out. They get paid every third nanosecond. They don't know how to deal with a company that is taking as big a swipe at the computer industry as we are."

Internally, employees say the mood remains upbeat, albeit guarded. Most employees now realize that the increasingly combative workstation market is one battleground where few, if any, will emerge unscathed. "We've all come to the realization that Sun is not going to take over the world like people thought a few years back," said one San employee who requested anonymity. "We're not the only game in town anymore, but if you consider the problems of DEC, IBM or HP/Apollo, we look pretty good."

Although employee reviews of McNealy are externally positive, the occasional barb slips in.

"He's not as competent as a lot of the managers in the computer industry," noted one backbench review compliment.

Still, the loss of some of McNealy's top general promises to help his job that much more difficult. No one has yet appeared for No. 2 man Bernard J. Lacroute, who served as the vice-president in charge of product and technology development and left in April, claiming that the hectic pace of the company had become too wearing. Although rumors have also surfaced that the position of chief operating officer may be soon to be created within the company, no official confirmation has appeared.

McNealy has not ruled out some reshuffling of Sun's corporate structure but has stopped

short of calling it a reorganization. "There is a very strong trend toward simplification and focus," he said.

The result has been industry status, with some of McNealy's harsh critics suggesting that Sun keep its eye out for a more rounded rounded image in much the same way that ex-PepsiCo, Inc. President Steve Jobs was brought in to bolster Apple Computer, Inc. and subsequently unseat co-founder Steve Jobs.

Company veterans also indicated that McNealy may have a vision of the company to which increasing numbers of employees as no longer subscribe. Robert Smith, a board member of Sun Capital, Calif.-based Internet Peripherals, Inc., who worked with Sun's first chief financial officer from 1984 to 1987, said he believes Sun has divided into two camps: veteran employees still adhering to the near-religious fervor that funded Sun's early rapid growth and greenhorns devoid of such total body-and-soul commitment, for whom Sun is merely a good place to work.

"This division is happening at higher and higher levels," Smith said. "In the mind of McNealy, everyone is still on this crusade, but this is just not the case anymore. That's why we see the slippage happening."

The result is that the company's lofty expectations have been crushed for short of goals. McNealy recently admitted, for instance, that orders for older Sun products were stronger than forecast while orders for the new products, such as the Sparcstation 1, have lagged. (CW, June 5).

Sun never doubted the unquestioned success of their new products, and that assumption is now having big repercussions, said Bruce Jenkins, a vice-presi-

dent at Daratech, Inc., a research firm in Cambridge, Mass. "Management needs to pay attention to these details."

However, company veterans also argue that it is unfair to question the firm's resilience based on a few acid marks. "Sure there are going to be some ups and downs, but I feel pretty good about their future," said Vicki Rhoads, a co-founder of Sun who now serves as president of Dynoskop Technologies Corp. in Pleasanton, Calif.

Nevertheless, the bloom is now most definitely off the rose.

"Sun is facing some very intense and public growing pains," ex-CFO Smith said. "It still wants to be a kid, pursuing whatever strikes its fancy and possessing unlimited energy, but it's grown into an adult."

Once the unchallenged workstation market leader, Sun has found itself fighting battles on several fronts. Digital Equipment Corp. and IBM are pushing toward the desktop with a new vigor; the introduced the 2100 Unix workstation last Tuesday, and a revamped RT is expected from IBM this fall. Hewlett-Packard Co. is offering a 90-day free trial of its workstations.

Sun also faces stiff competition in selling its Scalable Processor Architecture (Sparc), where it is pitted against several other reduced instruction set computer (RISC) architectures by such companies as Intel Corp., Motorola, Inc., Intergraph Corp. and Mips Computer Systems, Inc.

So far, Sun has faced a tough uphill battle in that area. Intergraph was No. 1 in the RISC market last year, accounting for more than 39% of total RISC stations shipped, according to International Data Corp. (IDC). Although Sun finished next in the

RISC horse race, it lagged far behind, with 25% of the total units shipped, IDC noted.

In addition to encouraging development of low-cost Sparc-based clones, Sun has also tried to gain market share by playing price-cutting hardball. Nagging questions linger about how long Sun can play that game with a \$50 billion company like IBM, which may simply be content to allow Sun's slim profit margin on its desktop line until Sun runs out of breath.

Company officials, however, claim they see this train coming. "We started in this business with the understanding that our margins would be low," said Director of Investor Relations Austin Mayer. "Sun is a lot better positioned to deal with low margins than IBM or DEC, who've got to financially feed layer upon layer of bureaucracy."

Analysts also warn that Sun should be careful not to let its heavily tactical errors blunder drive and alter the public perception of the company.

So far, that has not happened. Despite concerns, Sun remains the darling of the desktop power user. "If we stopped ordering from every company that occasionally has a batch-up, there would be nobody that we'd buy from," said Bush Karbal, associate director in charge of advanced technology support at Salomon Brothers & Co., Inc. in New York.

Most observers predict that Sun has the intestinal fortitude to weather the shifting winds of change and could ultimately emerge as a more mature and savvy venture. "The issue here is not whether Sun is a good company; it is," Montgomery Securities' Ossend said. "But now we're going to see if it's going to rise above all this to become a great company."



**Scott McNealy's**  
too much to handle?



**Dynoskop's K. Khobba**  
feels good about Sun

## Some spots on Sun

**S**un's future has become considerably more difficult to predict since a series of closely bunched hot spots began to bedevil the company. Some of the more recent Sun-spots:

• On April 12, the day Sun hoped to monopolize industry attention with the much-ballyhooed Sparcstation 1 rollout, Hewlett-Packard Co. and Apollo Computer, Inc. announced that they had merged, creating a conglomerate that quickly bested Sun as the No. 1 vendor in the market.

• On June 4, a favored customer from the HP minicomputer to an IBM-compatible mainframe complex was blamed for delaying thousands of orders. With revenue suddenly behind expectations, Sun President Scott McNealy conceded that Sun could soon experience its first quarterly loss since it went public in 1986.

• Eleven days later, Chief Financial Officer Joseph A. Gradias said he was jumping ship to assume the same title at Apple Computer, Inc.

• On July 1, a hiring freeze on all but the sales and support staff went into effect.

• The company has also said that it will delay its move into a new building in Palo Alto as well as the staffing of a new plant in Scotland.

## Putting a price on PC information

BY MICHAEL ALEXANDER  
CWT STAFF

When the thief who cleaned out a tax consultant's office in Silicon Valley realized that one of the personal computers he had stolen contained client tax records, he downloaded the information from its hard disk onto 20 floppy disks and mailed them to the victim.

The sympathetic thief realized that without the tax returns, the consultant would quickly be out of business. "It's the only case so far in which the thief recognized that the information had more value than the PC itself," said Don Parker, a security expert at SRI International, a management consulting firm in Menlo Park, Calif.

It is "inevitable," Parker warned, that at least some thieves will start realizing that the real money is not in stealing stolen PCs but in reselling the information they can take to a company's competitor or holding it up for ransom to its owners.

"Information theft" is being

given a careful mulling over by many insurance and security executives these days. How to define and value information so that it can be properly protected, even insured, is much more of an issue, in part because PCs are now so common in corporate America.

The Information Systems Security Association, Inc.'s Corresponding Committee on Information Valuation has spent more than a year hammering out definitions that it hopes will enable the insurance industry and others to define and value information.

The committee convened in St. Louis this month to "deliver the final cut on terminology, deliver a preliminary cut on factors of whether and how to value information and take a first cut at a methodology for valuing information," said Bill Oster, president of Oster, Perry & Associates, a computer security consulting firm in San Francisco. Oster is also chairman of the ISSA's Committee on Informa-

### tion Valuation.

"Can the potential value of information be insured?" asked Matt Haack, director of marketing, electronics and information technology at St. Paul Fire and Marine Insurance Co. in St. Paul.

Mark Rydgate, "That is the tricky question. In general, people in the insurance and information industries are trying to come up with an answer for it," he said. "It's an emerging area of risk management that requires more work."

Most insurance companies are going to be skeptical of whether a company wants to place on its information, Haack pointed out. If the company recognizes that its information is valuable, then it would be better off looking at ways to minimize the potential of losing it, he said. "Use common-sense practices to protect the information."

Even the most rudimentary computer equipment policy will cover the cost of reproducing information lost to theft or other

means, but none cover the value of the information itself.

Putting a value on a company's information would be difficult, even if insurance to cover it were available, said Michael Ridgway, vice-president of systems at Grange Insurance Co. in Columbus, Ohio. "Obviously, the cost to recover the data is infinitesimal compared to the actual value of the data itself in the wrong hands," he said.

It is difficult to put a value on information because it is often intangible, and its value goes beyond whatever it costs to acquire, develop or maintain it, ISSA's Oster explained.

"What use is made of the information, its criticality to the mission of the organization, how long can the organization go without the information and several other factors contribute to the value of information," he said.

Information also has different values to different groups. Authorization users of a company's information may even recognize that the information has value beyond its identifiable costs, while a thief who can sell it to a competitor does, for example.

## Prison

FROM PAGE 1

had the ability to store data "that may be a threat to the orderly operation of the institution," said Tom Rolla, assistant director of the division of prisons.

Rolla said the realization that so much data could be stored out of easy reach of prison staff and the appointment of a new prison director this past winter were the main factors for the committee's one-policy change issued last month.

There is a chance the 3-year-old program will get a reprieve. Last week, inmates were notified that while the computers were to be either shipped out of the institution or confiscated July 21, a final decision on the program would not be made until late August. Rolla said the reconsideration was due in part to lobbying by the computer industry. Interested organizations include IBM, McDonnell Douglas, Microsoft Corp. and Autodesk, Inc., based in San Jose, Calif.

According to officials, every man whose record qualified him to have a personal computer either had one last week or had one on order. All the inmates had to pay for the computers out of their own funds or have the hardware donated to them. At a pay rate of no more than \$36 per month, the computers cost them an average of 10 years' salary.

"This institution originally supported the program because

we thought [PCs] would be a TV. That thinking is no longer in vogue," said Jim Evans, intelligence officer for the Washington State Reformatory.

Evans said that requirements to have a computer in the cells were "clearly modifying behavior" and creating less of a discipline problem for the staff.

However, Mike Woods, associate superintendent of security, said that he could not pin down any direct effect on discipline.

keep their brains from "turning off" with a steady diet of television."

The convicts acknowledge that some who learn computers could use their computer skills in a criminal manner.

Still, The Prisoners' Users Group feels that the state is taking away the potential to develop programming skills on their own time and with their own funding. Although on records have been kept, the handful of inmates that

hope, "Boone said.

One still not available on the program was the ability to use modems, according to Lewis. He added that the only calls going out have to be made collect.

Yet the lack of access to the outside world has not deterred prison officials and staff from thinking that the PCs were being used for illicit purposes.

Guards are afraid that convicts can keep track of them via computer. "Computers are very strong source of information. The criminal element here can take much of advantage of it," officer Theodore Bucker noted.

Security officer Woods said that having computers in the cells took too much of his guard's time. "Ninety percent of the staff don't like it," he said. Peripherals, down to each cable, had to be indexed, and prison officials were supposed to know what was on each disk, a time-consuming endeavor. There is also a certain amount of resentment between inmates and users, and McWay said. Inmate Michael McWay said that a guard told him, "We can't have you guys smarter than we are."

If the in-cell computers do not get a reprieve by the end of August, Lewis, as well as other teachers and prison officials, are hoping to expand the hours of the computer lab to allow for programming homework. If history is any indication, it is unlikely that funds will be made available for this expansion.



Prison inmates hope for a reprieve from the removal of their PCs

The program was started three years ago by Max Lewis, an on-site computer systems teacher for Edmonds Community College. Lewis also credits John Anderson, a convicted multiple murderer, with helping him.

Many of those with computers, such as Anderson, have little chance of release. But, Anderson said, some still want to

have been released after taking part in the program have stayed out of prison. One success story is Bill Boone, who, after serving his time, now works as a computer-aided design operator for a Seattle engineering firm. "These guys are trying to advance themselves. A portion of them are trying to do some, but to take away their [PCs] does more damage. You have on

## Antivirus legislation proposed

BY MITCH BETTS  
CWT STAFF

WASHINGTON, D.C. — U.S. Rep. Edward J. Markey (D-Mass.), after chairing a hearing on the Internet virus last week, authorized his subcommittee staff to draft antivirus legislation with the help of Arlington, Va.-based Adapte, the computer software and services industry association.

Markey, chairman of the U.S. House of Representatives' Subcommittee on Telecommunications and Finance, said the panel will "move forward in a deliberate but speedy fashion . . . to create a significant deterrent" for malicious software attacks.

The legislation is likely to start with Adapte's proposed amendments to the Computer Fraud and Abuse Act of 1986, which covers unauthorized access to federal computers (CWA, Nov. 4). John E. Landry, executive vice-president of Culinet Software, Inc. and chairman of Adapte's virus subcommittee, urged Congress to amend the law to specifically cover "computer program tampering."

**More stringent definition**

Landry also said the amendments should better define the word "access," include the concept that harm is caused by the disruption of computer systems and ensure that laptop computers are covered.

At the hearing, the U.S. General Accounting Office (GAO) endorsed the concept of amending the 1986 computer-abuse law to cover viruses and to make prosecution easier. "Legislation directed at computer virus-type incidents could eliminate the uncertainty regarding the applicability of current law," the GAO said.

Michael M. Roberts, vice-president of networking for a university consortium called Edacon, cautioned that the legislation should be carefully drawn so that it does not restrict the free flow of information over research networks or discriminate against students.

The GAO, in a report on the Internet worm attack last November, recommended that the White House Office of Science and Technology Policy fill an Internet management void and become the security watchdog.

However, Markey said he will make an independent decision about which government agency should have responsibility for Internet, a web of interconnected research networks.

# Kodak

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Excel, will be able to issue commands to an SQL server," said David B. Kutzick, a partner at Network Strategies/Excel & Young, although he added that the company is not there yet. Users should thoroughly test interoperability between each application and server, since each vendor may have a slightly different SQL Passmore said.

Passmore also suggested that companies such as Kodak should look into a variety of options before they decide on one vendor's solution. While Kodak is definitely moving toward a distributed LAN database server architecture, it has by no means committed to any given technology to get the company there, Saverese emphasized.

In Kodak's pilot system, IBM Personal Computers will use personnel and payroll software from Peoplesoft in Walnut Creek, Calif., to access data from Gupta Technologies, Inc.'s SQL-based DBMS, which will reside on an OS/2 server.

One reason Kodak chose 3Com's networking software after evaluating competitive products from IBM and Novell, Inc., was that, at the time, only



Kodak's Saverese

3+Open supported remote workstation connections at rates of up to 9.6K bits/sec., Saverese said. This will become a key feature when Kodak's windows-oriented applications become more widely used and "it's tremendous amount of data gets sent across those lines," he added.

Even now, with the pilot just going in, with the 9.6K bits/sec. links up and running, Saverese's group has uncovered some response-time problems, which re-

late less to line speed than to how the application, DBMS and possibly the modems handle the data, he said.

While 3Com's 3+Open has not been out long enough to be evaluated, the network system is unlikely to have many problems beyond the usual early bugs, said Dale Kutzick, president of Westport, Conn., consulting firm The Meta Group, Inc.

The larger challenges for Kodak, Kutzick said, are operational, administrative and control aspects of the LAN. "Once you put up distributed shared databases, you enter a whole new realm in terms of management requirements, including integrity and data synchronization issues," he said.

Besides supporting human resources staff, the 3Com system will provide employees through-

out the company with a quick, easy way to view and update their own personnel records on the LAN servers.

Kodak developed software internally based on IBM's Infowindows that allows users to query data on a host and a local screen on an IBM PC. Such PCs would be installed at kiosks around the company, he added.

If the pilot works and is ac-

cepted by users and if Kodak decides that this is the way it wants to handle its business — "all very large fits," Saverese said — the system could be installed in 300 or more LANs throughout the world. Kodak would then move all of its human resources data off the host and onto servers.

The hosts would be retained, at least temporarily, and LAN-

to-host links installed, so that users can access other types of data, such as general ledger, Saverese said.

In addition, while LAN users could communicate with one another via 3Com's 3+Open Mail, the current host-based corporate-wide electronic mail system, based on IBM's Professional Office System, would be retained, he added.

## EDS no longer in Kodak picture

BY CLINTON WILDER  
CNET STAFF

**E**astman Kodak is renowned worldwide for its color film and processing, but its negotiations for an outside vendor to run its data centers now have only one color: Blue.

Kodak announced last week that it has broken off negotiations with Electronic Data Systems Corp. and is instead selecting IBM to absorb a closely guarded project to farm out some or all of its Rochester, N.Y., business information systems operations to a services provider (CNET, June 19). Even though both companies are longtime Kodak vendors, the decision to drop EDS came as a surprise because IBM submitted a proposal for this project several months after EDS.

"When IBM had to offer was closer to what we wanted," said Bill Bratigen, a member of the negotiating team for the project and an IS employee at Kodak. "As you go through a process, you look at things differently."

Bratigen said the dropping of EDS does not indicate a change in Kodak's goals for the project, which may involve building a new data cen-

ter to consolidate the three centers Kodak runs in the area. However, a source within Kodak said IS employees were not happy about the prospect of working for EDS and preferred IBM's proposed approach, which the source said is in more of a joint partnership with Kodak IS management.

"EDS goes in with kind of a hatchet, eliminates bodies, orchestrates, coordinates and economizes," said Stephen McClellan, a computer services industry analyst at Merrill Lynch & Co. "That's their job, and that's what they do well. However, there is another thing they try to accomplish. I suspect that might not be IBM's approach."

At least one proposed currently being discussed would consolidate Kodak's data centers at corporate headquarters and two Rochester manufacturing facilities, the Kodak Apparatus Division and Kodak Park. Negotiations with IBM are in the final stages and an announcement could come very soon, sources said.

If consummated, the agreement could be a major coup for IBM's push into commercial systems integration and services and would make Kodak one of the largest companies to opt for outside management of the IS function.

## Andersen exec joins competitor CSC

BY CLINTON WILDER  
CNET STAFF

**C**AMBRIDGE, Mass. — Consultant Melvyn E. Bergstein, who helped build Andersen Consulting's huge commercial information systems services business, will now try to do the same for a major Andersen competitor, Computer Sciences Corp. (CSC).

CSC hired Bergstein last week as senior vice-president of newly formed CSC Consulting, a unit consolidating the com-

mercial systems integration and consulting firms that CSC has acquired in the past three years. CSC, a longtime leader in federal government IS projects, is trying hard to crack the commercial sector, and tapping Bergstein is its latest move in that direction.

Bergstein, 47, will report to Thomas P. Gerrity, president of CSC Consulting and former chairman of Index Group, Inc., the senior-level IS consulting unit that CSC acquired last year.

Analysts said landing Berg-

stein was a significant coup for CSC to position itself in commercial IS. "He may bring the most practical commercial experience of all those groups," said Doug Wible, manager of Input, Inc.'s systems integration program in Vienna, Va. CSC President William Hoover "is really focused on getting the right people in place to make the commercial business work."

Bergstein, a colorful and outspoken consultant, made no secret of the fact that recent

actions between the auditing and consulting practices at Chicago-based Arthur Andersen & Co. played a part in his departure. "It felt my contribution there was behind me," he said. "It wasn't fun anymore, and this business is too tough if it isn't fun. You can't maintain the same enthusiasm."

Bergstein noted that CSC Consulting, with about \$250 million in annual revenue, is the same size as an Andersen IS consulting practice when he became an Andersen partner in 1977.

His goal, Bergstein said, is not to "re-create Andersen," with its legions of systems programmers and legendary "technology boot camp" for new employees. Under Bergstein's direction, Andersen also became a major vendor of software products spearheaded by Foundation, its computer-aided software engineering tool set. "We have a lot of other things we have to do before we start selling software,"

Bergstein said of CSC.

CSC has adopted a hands-off approach with its acquired companies to date. Bergstein said his primary goal will be to find areas where CSC's large-technology expertise — including designing large systems for weapons guidance, air-traffic control and the space program — can aid CSC Consulting's commercial efforts.

Bergstein is one of several high-profile consultants who have left Andersen recently, including Sasechi & Sasechi, Inc.'s Victor Seachrist and Information Consulting Group's Graham Brothman. But Merrill Lynch & Co. analyst Stephen McClellan, who hailed Bergstein's addition as a breakthrough for CSC, downplayed the impact his departure had on Andersen.

Andersen is "the show of this business, the superstar," he said. "For them to lose much momentum is going to take a lot more than that."



Bergstein is leaving in commercial sector

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## TRENDS

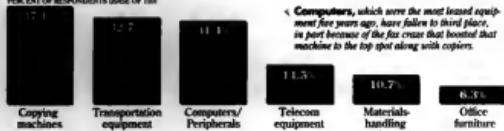
## Leasing

A Gallup survey of 225 executives indicates that leasing is becoming a vital means of financing all types of equipment. Computer leasing alone hit the \$20 billion mark in 1988.



## What does your company lease?

PERCENT OF RESPONDENTS (BASE OF 121)



## What are the advantages?

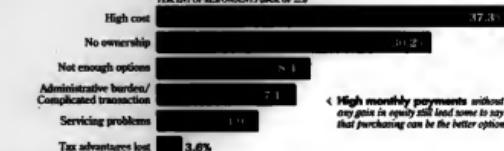
PERCENT OF RESPONDENTS (BASE OF 220)



Most of the reasons for leasing revolve around financial considerations.

## What are the disadvantages?

PERCENT OF RESPONDENTS (BASE OF 225)



High monthly payments without any gain is equity will lead some to say that purchasing can be the better option.

SOURCE: AMERICAN ASSOCIATION OF EQUIPMENT LESSORS

CREDIT: FRANK C. PETERSON

## NEXT WEEK

**I**t sounds impossible, but Doug Lewis, chief information officer at Pratt & Whitney, has trimmed costs and cut staff at the jet engine unit of United Technologies — and he's won friends and influenced people while doing it. Read about what else is on this up-and-coming IS executive's agenda in the profile in Manager's Journal.

**A**fter repeated stone-walling on the subject, Wang Laboratories, Inc. recently confirmed that its PBX subsidiary, Intecom, actually is on the trading block. Industry analysts, however, noted that consummating a sale might prove even harder for Wang than the process of arriving at the decision — and the roadblocks, they believe, may well be from particular to Wang. See more about the ins and outs of the situation in the Computer Industry section.

## INSIDE LINES

## Does this impress you?

"Impressive performance" figures will accompany the availability of Version 2, Release 2 of IBM's DB2, which will take place as promised prior to October, says Dennis Van Fleet, director of database strategy at IBM's San Jose Research Laboratories. "Our goal is to not let performance be an issue," Van Fleet said, referring to earlier hesitancy in moving to relational database technology. DB2 will show performance gains in queries, on-line transactions and batch processing, she said.

## Please, don't let it be in service!

Wang Laboratories has more than met its goal of paring the work force down to 28,000 by its fiscal year's end, which fell on June 30. A spokesman said the company has "lost" 3,000 positions, mostly through layoffs. After an "exact" head count that will be conducted in the fourth quarter, the company will make a determination as to whether more layoffs are necessary.

## Finally in line with world opinion . . .

Five years of struggling against the tide in the computer industry has clearly handed AT&T. Attendees at last week's unveiling of Intel's line of 80386-based personal computers heard Robert M. Kavner, chief executive at AT&T's Data Systems Group, concede at one point that yes, the Big Bell has wound up with a reputation as the company that can't sell computers.

## . . . but not ready to call it quits

Michael Goude, a director at BIS CAP International, attended a separate AT&T briefing at which executives foreshadowed both OS/2 client support and an OS/2 LAN Manager application programming interface in the next release of its Stargate network operating system, due out by the end of the year. AT&T also said it would support Apple's Appletalk and indicated it is closely tracking Intel 80486 developments. Regarding the Extended Industry Standard Architecture (EISA) alternative to IBM's Micro Channel Architecture, Goude relates, "It was evident that they will introduce [an EISA] machine, but they do not see the need for a wide range of EISA cards." This is because AT&T sees EISA as more or less serving a niche market, he added.

## Mac attack!

Microsoft reportedly gathered key Macintosh developers recently in a Redwood City, Calif., hotel to extoll the virtues of Windows and Presentation Manager. At the not-so-top-secret meeting, Microsoft reportedly pitched development tools aimed at easing the overall programming burden. We wonder if it also begged?

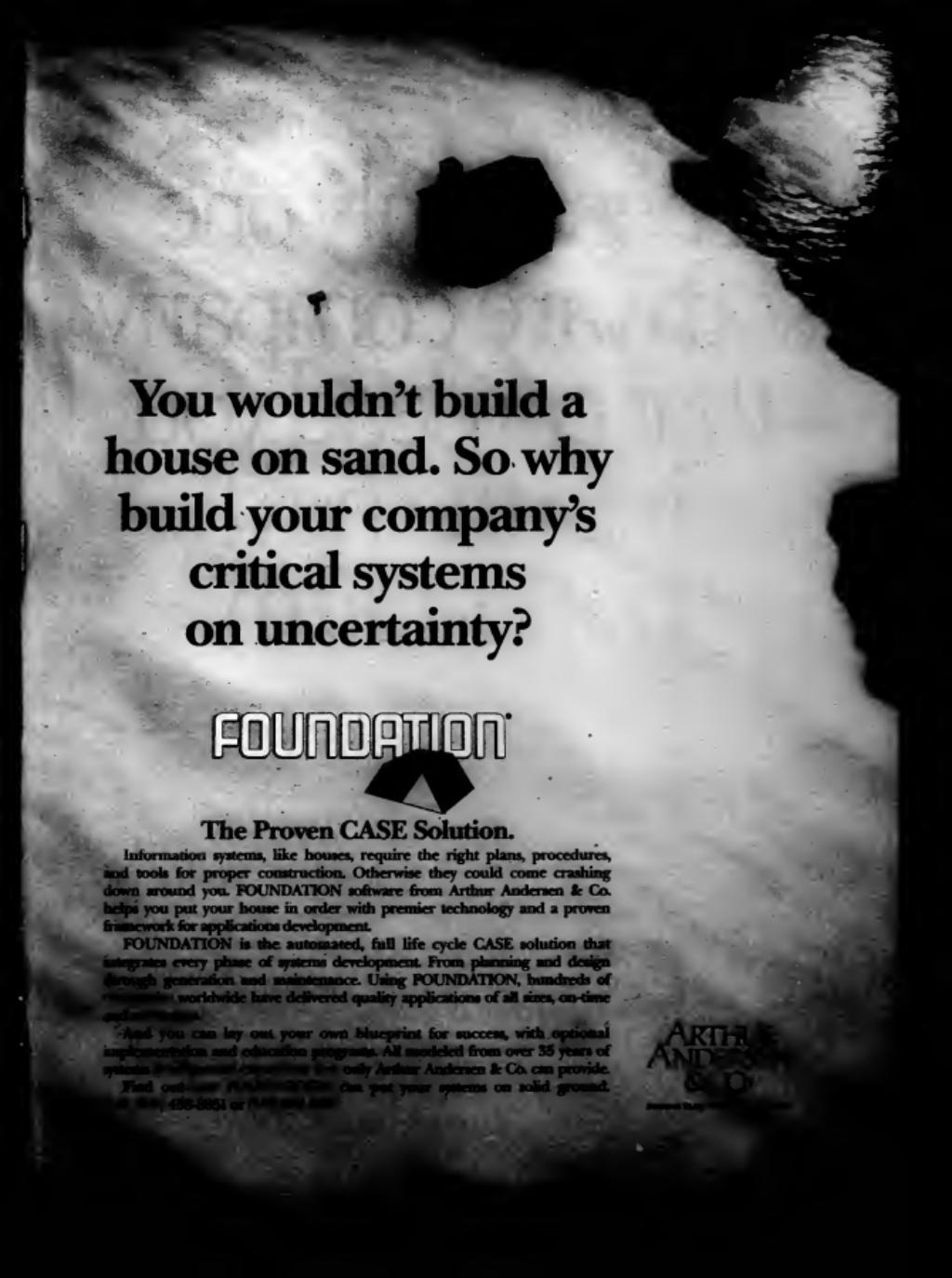
## Who can keep track?

Andahl has been bragging for months that it is ahead of schedule for introducing MVS/ESA compatibility for its mainframes. But rival National Advanced Systems will beat Andahl to show-and-tell time with its first demonstration, set for Tuesday. Andahl's first demonstration is scheduled for next week.

## We don't blame them

Following up on Computerworld's July 17 report of impending indictments against Robert T. Morris Jr., the Cornell University student who allegedly put a worm into the Internet last year, USA Today said last week that the badfellow student is working at Saber Software, located in Cambridge, Mass. A developer of tools for machines running DEC's Unix and Sun's Unix, Saber denied Friday that Morris is an employee. However, a spokeswoman at Saber said that "he's not coming back."

**How ingrained is high-tech in the culture of Silicon Valley?** Well, a local firm selling a shriveling unit that hooks to the side of your head to receive a radio ad whenever the game is described as "audience-vote." If you're turned into Valley denizens, update them to the attention of News Editor Peter Bierlich by clicking into our bulletin board at 508-626-0214, or call in at 800-343-6476.



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